



**US Army Corps  
of Engineers**  
Galveston District

# **DRAFT ENVIRONMENTAL ASSESSMENT**

## **CONSTRUCTION OF A NEW EAST JETTY**

### **MOUTH OF THE COLORADO RIVER MATAGORDA COUNTY, TEXAS**



Photo © Richard L. Watson

**U.S. ARMY ENGINEER DISTRICT, GALVESTON  
GALVESTON, TEXAS**

**APRIL 2008**

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# **DRAFT ENVIRONMENTAL ASSESSMENT**

## **CONSTRUCTION OF A NEW EAST JETTY MOUTH OF THE COLORADO RIVER, TEXAS**

### **1.0 PROPOSED ACTION**

This document addresses the proposed construction of a new east jetty at the Mouth of the Colorado River. It was prepared in accordance with the National Environmental Policy Act of 1969 (NEPA) and Council on Environmental Quality regulations to document findings concerning the environmental aspects of the proposed action.

### **1.1 PROJECT SUMMARY**

The U. S. Army Corps of Engineers (USACE), Galveston District (the District) is proposing to construct a new east jetty between the Colorado River Entrance Channel and the existing east jetty. The non-federal, local sponsor for this action is the Port of Bay City Authority. The proposed structure would reduce the rate of shoaling in the entrance channel, providing for more reliable and safer navigation and reducing the costs of maintenance on the channel. Additionally, it would reduce erosion on the western shoreline of the Colorado River Channel. The proposed project site is located about 6.5 miles south of the town of Matagorda in Matagorda County, Texas (Figure 1). For purposes of this Environmental Assessment, the project area is defined as the area between the existing jetties, including the entrance channel, beach and surf zone.

### **1.2 NEED FOR PROJECT**

The authorized project design features at the mouth of the river include a jetty system, sediment impoundment basin, 550-foot sediment training structure (STS), navigation entrance channel, and beach dredged material placement area. These features are depicted in Figure 2. The construction of the existing entrance channel and jetty system was completed in the late 1980's. The design dimensions of the entrance channel are 15 feet in depth and 200 feet in bottom width. The minimum width between the east and west jetties is 1,000 feet, which is at the seaward ends of the jetties. The jetties are "flared", such that the distance between the jetties increases toward land.

The direction of the longshore current in the region is predominantly east to west. The east jetty has a weir section at the shoreward end that was designed to allow the sand transported in this longshore current to move across the jetty and settle in the 30-foot-depth impoundment basin, rather than accumulating in the channel. During periodic maintenance dredging, accumulated sediment from the basin is excavated and pumped to the beach down shore from the west jetty, thereby restoring this material to the littoral sediment budget. The expected frequency of maintenance dredging of the impoundment basin and navigation channel was estimated to be every 2 years. However, the existing project is not functioning as anticipated and dredging has been needed on a much more frequent basis.



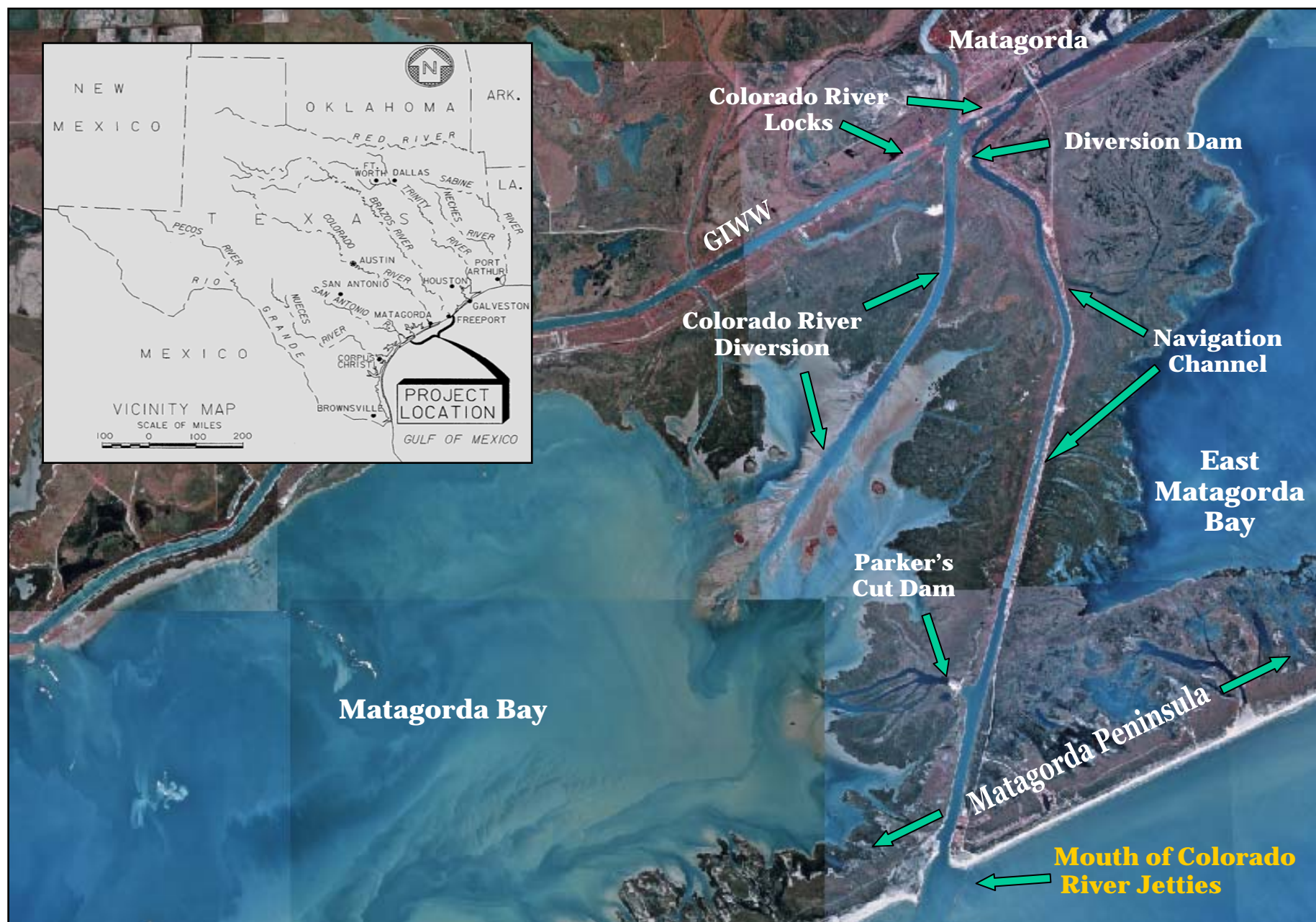


Figure 1 – Proposed Project Location

3



The design and construction of the existing jetties and impoundment basin system were based on studies performed prior to construction of an upstream diversion dam, which diverted the flows of the Colorado River into West Matagorda Bay. The diversion eliminated flows that were anticipated during the design of the jetties. Also, the rate, volume, and pattern of littoral drift were underestimated. The District constructed the sediment training structure in 2003 as an interim measure intended to direct sand into the impoundment basin. However, while the structure may have been effective in directing sand into the basin, it did not result in a long-term reduction of the shoaling rate in the channel. The structure quickly was buried and overtopped by wind-blown sand and much of the sand transported by wind continues to bypass the impoundment basin and settle in the navigation channel. The formation of hazardous shoals in the channel has been a continuous and increasing problem up to the present time, resulting in the need for more frequent dredging as sand fills in the entrance channel.

During the first maintenance dredging operation, which was performed about two years after the completion of the existing jetty system, almost 1,400,000 cubic yards of material needed to be dredged from the entrance channel and impoundment basin. This was more than double the amount of material that the District anticipated would accumulate and need to be dredged. After this, the District performed maintenance dredging on an annual basis. Up until 2001, which was the last year in which the full authorized entrance channel design dimensions were available to users, District dredging records show that an annual average of about 586,000 cubic yards of material was dredged to return the channel to authorized dimensions and remove the sediment from the impoundment basin. Kraus et al. (2007) estimate that about two thirds of this material is sand that originates from littoral drift and one third is finer material eroded from the navigation channel and GIWW.

Despite annual dredging, critical shoaling occurred between dredging cycles. In 2001 and 2003, the District performed maintenance dredging but considerably less material was removed on these occasions than during previous dredging operations and the dredging did not return the channel and impoundment basin to design conditions. In 2005, the cost for maintenance dredging exceeded the amount of funds available and the decision was made to seek a permanent solution to the rapid shoaling problem. At the present time, the authorized channel has completely filled in and has effectively migrated to the west, and is very shallow. The aerial photograph in Figure 3 shows the conditions at the Mouth of the Colorado River in October of 2007.

The proposed project is expected to allow the jetty system to function as originally intended in terms of maintaining the navigation channel entrance. In addition to the shoaling problem, erosion is occurring on the west bank of the channel, immediately landward of the west jetty, due to wave action. The project is also expected to reduce this erosion by reducing wave action across the entrance channel. Wave action would be diminished by reducing the distance between the jetties and having an impervious structure without a weir section.



Photo © Richard L. Watson

**Figure 3 – Mouth of the Colorado River, October 2007**

### 1.3 PROPOSED PROJECT

A number of alternatives were evaluated and are described in Section 2. The proposed project is the only alternative that cost-effectively fulfills the following criteria:

- The shoaling rate in the entrance channel must be reduced
- The dredging frequency must be reduced
- The interruption of littoral drift must be minimized
- Potential adverse impacts to Endangered Species and Critical Habitat must be minimized
- The erosion on the west bank of the navigation channel should be reduced

The proposed work is depicted in Figures 4 through 6. The proposed new jetty would be approximately 2,750 feet long, in three segments. It would be constructed of varied rock sizes. The landward segment, approximately 550 feet long, would be constructed on top of the existing sediment training structure. The middle segment, approximately 700 feet long, would angle to the southwest toward the west jetty. This segment would be constructed on the land. The

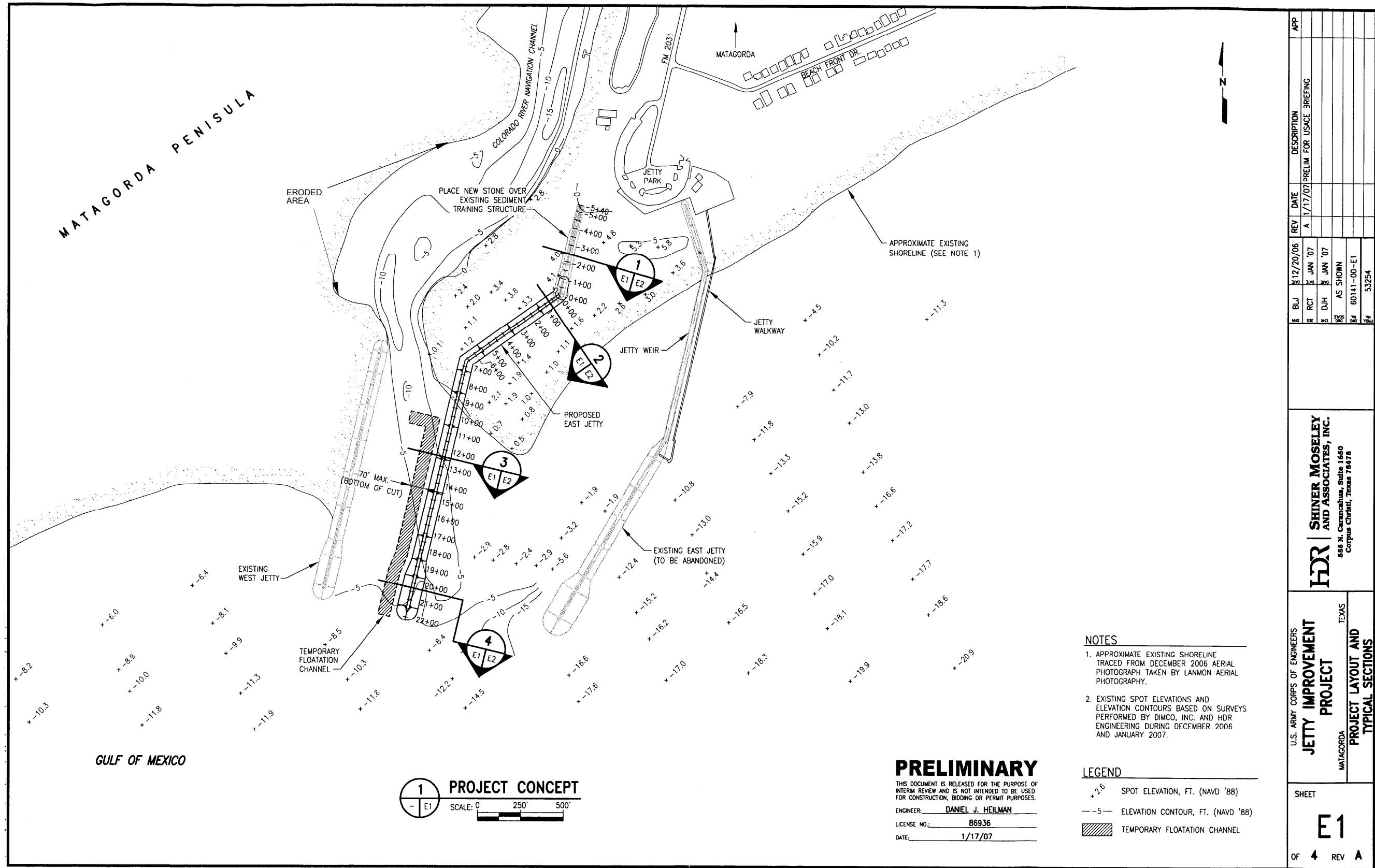
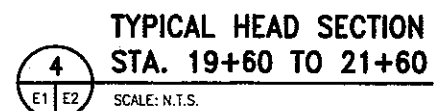
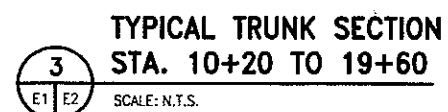
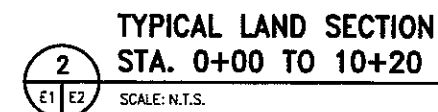


Figure 4 – Proposed Jetty Preliminary Plan View





ENGINEER: DANIEL J. HEILMAN  
 LICENSE NO.: 86936  
 DATE: 1/17/07

1. ALL ELEVATIONS ARE REFERENCED TO  
NAVD '88

BLJ	REV	DATE	DESCRIPTION	APP
8 RCT	A	1/17/07	PREFUM FOR USACE BRIEFING	
8 DJH		JAN '07		
AS SHOWN				
60141-00-E2				

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U.S. ARMY CORPS OF ENGINEERS  
**JETTY IMPROVEMENT  
PROJECT**  
MATAGORDA TEXAS  
**ALTERNATIVE JETTY SECTIONS**

SHEET

E2

OF 4 REV A

**Figure 5 – Proposed Jetty Preliminary Cross Sections**





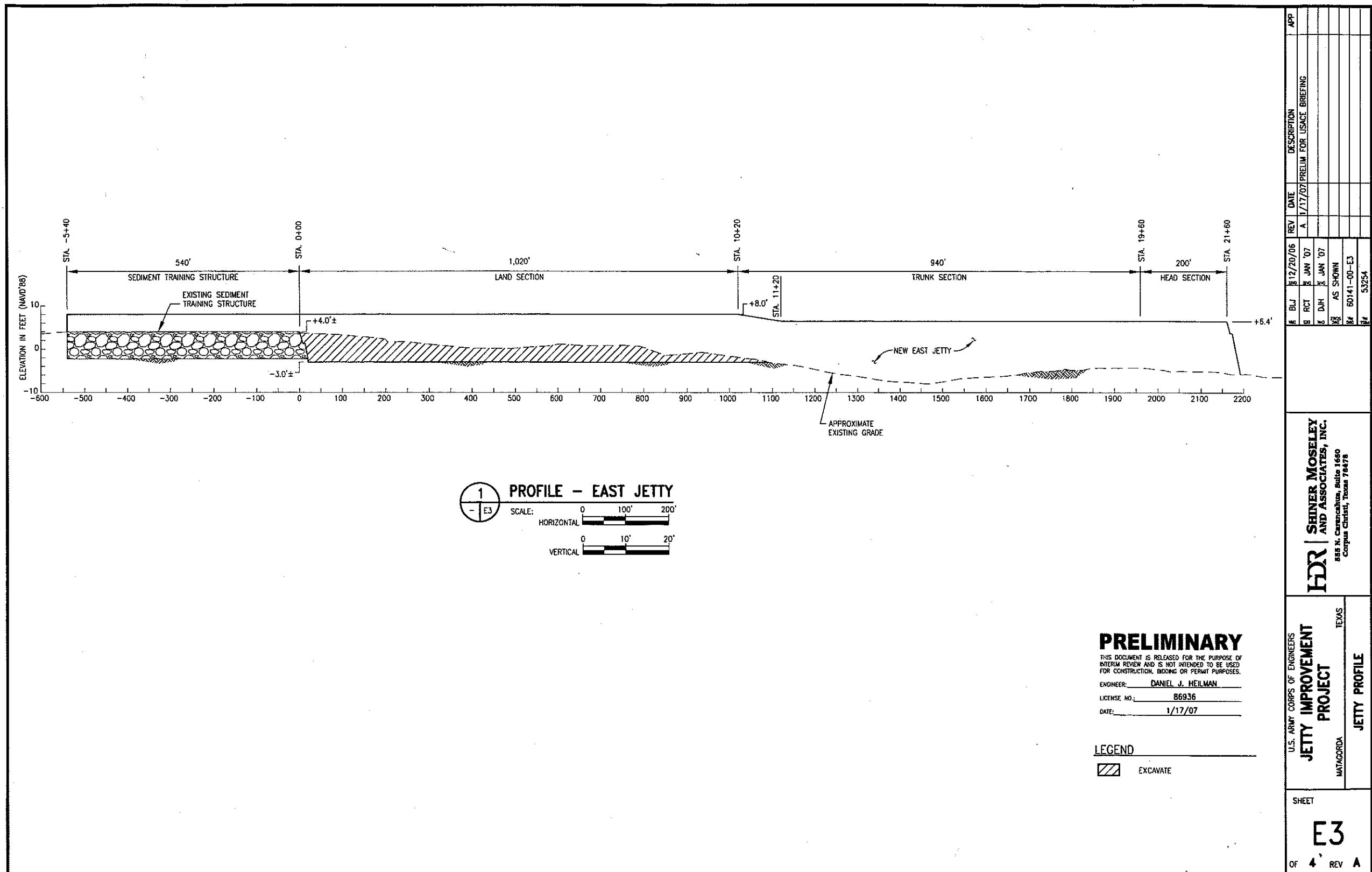


Figure 6 – Proposed Jetty Preliminary Profile



seaward segment, approximately 1,500 feet long, would be constructed parallel to the west jetty, with a portion on land and the remainder in the water. The crown (top) width of the jetty would be 16 feet. The existing east jetty would remain in place.

The new jetty would vary in base width from about 75 feet in the beach zone to about 120 feet at the seaward end. The final elevation would vary between 6.6 feet above Mean Sea Level (MSL) on the seaward end and 8.2 feet MSL on the landward end. The higher elevation at the landward end is designed to impede wind-blown sand movement into the channel and sand that might be carried in from the sides during storms and high water levels. The total acreage that would be occupied by the completed structure is estimated to be about 6 acres, which includes approximately 0.8 acres already occupied by the existing sediment training structure. Much of the new jetty would be constructed on the accumulated spit and beach and a portion at the head end of the new jetty would be in shallow water in the surf zone.

Construction of the proposed jetty would be performed by land-based and waterborne equipment, which could include dump trucks, tug boats, barges, cranes with "clamshell" or "orange peel" buckets, draglines, front end loaders, backhoes and cutterhead dredges. Approximately 36,000 cubic yards of sand would be excavated or dredged from the construction footprint before placement of stone material. Most of this sand would be pumped by dredge pipeline to the existing beach placement area in the surf zone from about 2,000 to 5,000 feet west of the west jetty (see Figure 2). A portion of this sand may be placed in the water west of the new jetty by draglines as the new jetty construction proceeds gulfward, later to be dredged and pumped to the beach placement area. In addition, a portion of this sand may be deposited directly on the beach in the vicinity of the new jetty.

Various sizes of rock, consisting of bedding stone, core stone and cover stone would be placed in a configuration to allow the structure to withstand wave energies prevalent at the project site. The stone used for construction would include about 35,000 tons of 1/2- to 200-pound bedding stone, 61,000 tons of 200- to 2,000-pound core stone, and 49,000 tons of 4- to 12-ton cover stone. The rock would be transported to the project site by trucks or barges, depending on the source of the stone. Cranes, draglines or other heavy lifting equipment would be used to unload and position the rock. The duration of construction work is expected to be from 500 to 700 days, depending on the contractor's resources and capabilities.

A temporary flotation channel may be needed to allow construction access by barge. This channel would be dredged using a cutterhead dredge. The channel would be approximately 9 feet deep below MSL and 1,000 feet long, with a typical bottom width of 70 feet. The total volume of material removed for the construction of the flotation channel is expected to be approximately 14,000 cubic yards. The dredged material would be pumped to the surf zone in the Beach Placement Area to the west of the jetties. Back-filling would not be conducted following completion of construction operations. The flotation channel would be allowed to refill through natural coastal processes.

The distance between the centerlines of the west jetty and the seaward segment of the new east jetty would be 500 feet. The entrance channel would be reconstructed and centered between these jetties. To enhance tidal flows that would help maintain project design depth, the bottom width of the entrance channel would be reduced to 150 feet from the existing project design width of 200 feet. The channel depth would remain at 15 feet. The total amount of

material dredged and excavated for constructing the new jetty and reconstructing the entrance channel would be an estimated 400,000 cubic yards.

Hydraulically dredged material from new work and for future maintenance work would be transported and discharged in the same manner as is done with current maintenance operations for the existing project. Currently, dredge pipelines are laid along an established, 100-foot-wide pipeline corridor that runs from north of the west jetty to the beach and then along the upper beach to the discharge area, which extends from about 2000 to 5000 feet west of the west jetty. The pipeline sections are typically placed using bulldozers. As part of the hydraulic dredging process, the dredged material is pumped through the dredge pipeline as a mixed slurry of sand and water and is discharged in the surf zone. The seaward limit of the beach placement area is a line that extends roughly southwest from the end of the west jetty, parallel to the shoreline (Figure 2). Bulldozers are used to reposition and smooth dewatered dredged material as it accumulates, which is limited to a height of 8 feet above MLT. The material is then left to be redistributed by prevailing natural coastal processes and returned to the littoral drift system. For the proposed project, dredged material will also be used to restore the eroded area on the west bank of the navigation channel (shown in Figure 4).

After construction, maintenance dredging of the entrance channel is expected to be performed on a 2-year cycle using cutterhead dredges. A projected average of about 100,000 cubic yards of maintenance material would be hydraulically dredged from the entrance channel per dredging cycle. The dredged material would be pumped to the beach and surf zone area described previously. This would result in a long-term average of 50,000 cubic yards of maintenance material per year being removed from the channel. Actual amounts dredged during any particular dredging cycle would vary, depending on wave conditions and the severity and frequency of storm events between cycles.

To minimize the interruption of littoral drift and to minimize the volume of material entering the entrance channel, additional sand by-passing would be accomplished by dredging the sand fillet that will form on the east side of the proposed east jetty. This material may be removed during the time of the entrance channel maintenance dredging or at other times, depending on need and available funds. After jetty construction, the accumulated sand between the proposed new jetty and the existing east jetty likely would be excavated using a jet pump operated from a crane on the beach and connected by pipeline to a booster pump, which would pump the sand and fluid mixture to the west beach placement area. It is expected that this would be done when the impoundment fillet grows to approach the seaward end of the proposed east jetty. An estimated long-term average of about 200,000 cubic yards would be bypassed per year. Together with maintenance dredging, this would result in an estimated total long-term annual average of 250,000 cubic yards of material per year being bypassed to the west.

## **2.0 ALTERNATIVES CONSIDERED**

As mentioned in Section 1.0, a number of alternatives were evaluated based on the following criteria:

- The shoaling rate in the entrance channel must be reduced
- The dredging frequency must be reduced
- The interruption of littoral drift must be minimized

- Potential adverse impacts to Endangered Species and Critical Habitat must be minimized
- The erosion on the west bank of the navigation channel should be reduced

Table 1 contains a matrix that shows each alternative that was considered and the screening criteria that were met for each alternative. The recommended plan is the only alternative that is cost effective and fulfills the criteria. Each alternative is discussed in the following sections.

<div>Screening Criteria</div> <div>Alternative</div>	Reduce shoaling rate in channel	Reduce dredging frequency	Minimize interruption of littoral drift	Minimize Endangered Species impacts	Reduce erosion on west bank of channel
1. No Action Alternative			✓	✓	
2. Optimize Impoundment Basin			✓	✓	
3. Construct Groin Field	✓	✓			
4. Elevate Landward Portion of Weir				✓	
5. Close Outer Portion of Weir			✓	✓	
6. Over-Dredge	✓	✓	✓		
7. Extend West Jetty			✓	✓	
8. Open Parker's Cut			✓	✓	
9. Construct New East Jetty	✓	✓	✓	✓	✓

**Table 1 – Alternatives and Screening Criteria Matrix**

## 2.1 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

The No Action Alternative would be to continue to operate the Mouth of the Colorado River in its present configuration and maintenance frequency, subject to the availability of funding. Doing so would result in the continued high rate of shoaling in the navigation channel entrance. The shoreline at the base of the west jetty would continue to be unprotected from wave energy and would continue to erode.

To maintain the entrance channel to project specifications, there would be a need to dredge the navigation channel at a frequency much greater than the original design frequency of every 2 years. From the time of the first maintenance dredging cycle up to the year 2001, the last year in which full authorized entrance channel dimensions were available to users, the channel entrance and impoundment base were dredged annually. An average of 586,000 cubic yards of sediment per year was dredged and bypassed, but this was not enough to keep the channel from shoaling between dredging cycles.

If dredging frequency were increased to keep up with the shoaling rate, there would be more frequent disturbance associated with the placement of dredge pipelines to the west of the mouth of the river. However, based on recent trends in USACE operation and maintenance funding, it is unlikely that funding would be available for more frequent dredging and it is more likely that overall funding levels for the District will continue to decrease. Sufficient funds for maintenance dredging of the entrance channel have not been available since 2003, the last year that maintenance dredging occurred. If this trend continues and the No Action Alternative were selected, shoaling would continue to be a problem and safe and reliable navigation of the channel could not be realized. The level of littoral flow interruption would likely increase. Therefore, this alternative would not be a viable solution to the problem.

## 2.2 ALTERNATIVE 2 – OPTIMIZE SIZE AND POSITION OF IMPOUNDMENT BASIN

This alternative would consist of optimizing the size and position of the impoundment basin. However, previous construction of the impoundment basin, along with the existing jetty and sediment training structure configuration, resulted in the basin becoming completely shoaled in, reducing its value to a short-term service in keeping the entrance channel open to navigation. Also, it did not reduce the amount of shoaling in the navigation channel nor decrease the frequency of maintenance dredging. Sand can easily be transported into the channel on the landward side of the impoundment basin during the frequent times of higher water level during strong onshore winds and storms on the Texas coast. The impoundment basin cannot be partially located on the shore and it also poses a public safety hazard in placing a deep pit close to shore. Therefore, this alternative was eliminated from further consideration. The precise area that would be directly impacted was not determined since this alternative was eliminated early in the selection process, but the impacts would be similar to those of the current impoundment basin design.

## 2.3 ALTERNATIVE 3 – CONSTRUCT GROIN FIELD

This alternative would involve constructing a series of groins along the shoreline east of the entrance channel and jetties. Five groins would be constructed using varied sizes of rock material, consisting of about 82,000 tons of ½- to 200-pound bedding stone, 236,000 tons of 200- to 2,000-pound core stone, and 127,000 tons of 4- to 10-ton cover stone. Approximately 70,000 cubic yards of sand would be excavated before placing the stone materials. These structures would directly impact a total area of about 9 acres. Roughly 20 percent of each groin would be constructed on land, with the remainder being in shallow water in the surf zone.

This alternative would retain sediment east of the jetties, causing sand to accumulate in this area and reducing the amount of sediment entering the channel. However, this would increase the disruption of littoral drift processes, which would result in increased erosion west of the jetties due to the reduction in the sediment supply. Also, it would have little to no effect on the erosion problem on the west bank of the entrance channel. This alternative is not environmentally acceptable, due to the interruption of littoral drift processes. There also would be excessive direct impacts on the beach east of the mouth of the river, which is designated Critical Habitat for the wintering piping plover, a species listed under the Endangered Species Act. This alternative was eliminated from further consideration.



## 2.4 ALTERNATIVE 4 – ELEVATE LANDWARD PORTION OF WEIR

The landward portion of the existing weir would be elevated to the same height as the existing east jetty. Approximately 1,880 tons of ½- to 200-pound bedding stone, 3,630 tons of 200- to 1000-pound core stone, and 1,385 tons of 4- to 6-ton cover stone would be used for the structure. The larger cover stones from the existing weir would be removed before construction. The new portion of the structure would directly impact an approximate ½-acre area. This alternative would force sand moving alongshore into the impoundment basin. However, this alternative was eliminated from further consideration because it would not have a significant affect in reducing shoaling in the channel and sand would be unduly impounded on the beach to the east of the weir, disrupting natural littoral transport. The impoundment basin would suffer deficiencies as noted in Section 2.2, and the eroding shoreline landward of the west jetty would still be unprotected.

## 2.5 ALTERNATIVE 5 – CLOSE OUTER PORTION OF WEIR

Under this alternative, the outer half of the weir would be closed with an impermeable rock structure. About 7,725 tons of ½ to 200-pound bedding stone, 11,210 tons of 200- to 2,000-pound core stone, and 4,500 tons of smaller filler stone, and 50,000 tons of 8- to 12-ton cover stone would be used. An estimated 13,750 cubic yards of material would be excavated from an approximate ½-acre area of shallow water before placing the stone material. This alternative would reduce wave penetration into the impoundment basin and entrance channel, thereby increasing the likelihood that sand would settle in the impoundment basin before reaching the channel. However, this alternative was eliminated from further consideration because sand would still be easily transported into the channel on the landward side of the impoundment basin and for reasons as described in Section 2.2.

## 2.6 ALTERNATIVE 6 – OVER-DREDGE AS NEEDED

This alternative would consist of over-dredging the existing navigation channel and area between the existing jetties to an optimum depth and width that would be needed to decrease the frequency of having to dredge the channel. An estimated 2,000,000 cubic yards of material would initially be dredged and pumped to the beach west of the entrance channel. About 65 acres would be directly impacted by the dredging. Maintenance dredging would be performed on an annual basis, during which approximately 1,000,000 cubic yards of material would be dredged. This alternative was not selected because of high maintenance volume and associated cost, and the uncertainty for available funding. Also, the eroding shoreline landward of the west jetty would be even more subject to wave action due to deeper water depths between the jetties. The bank would erode more rapidly, posing a greater threat to the west jetty and surrounding habitat. Implementing this alternative would result in annual disturbances to the beach dredged material placement area, which may be utilized for nesting by sea turtles or foraging for wintering piping plovers. Further, this alternative would not guarantee that a critical shoal would not form in the entrance channel and would not achieve the goal of less frequent dredging.

## 2.7 ALTERNATIVE 7 – EXTEND WEST JETTY

This alternative would consist of extending the existing west jetty by approximately 500 feet. Approximately 16,500 tons of ½- to 200-pound bedding stone, 47,000 tons of 200- to 2,000-pound core stone, and 25,500 tons of 8- to 12-ton cover stone would be required. About

14,000 cubic yards of material would need to be dredged from an estimated ½-acre area of shallow water for the structure's foundation.

This would result in only a small decrease in the dredging cycle along the channel. At this site, the predominant direction of littoral transport is from east to west. Therefore, extension of the west jetty would only decrease the small volume of sand entering from the west during reverse flows and not address the major source to the east. Accordingly, this alternative was eliminated from further consideration because it would not eliminate the major source of sand intrusion into the entrance channel.

## 2.8 ALTERNATIVE 8 – OPEN PARKER'S CUT

Opening Parker's Cut would reestablish tidal exchange between the Gulf of Mexico and Matagorda Bay, increasing tidal flows and velocities through the entrance channel. This would result in an increase in self-scouring in the channel. However, modeling done by USACE's Engineer Research and Development Center (ERDC) shows that the flow would become flood dominant, with stronger flood currents that would bring sand from the entrance into the navigation channel, resulting in shoaling in the channel (Kraus et al, 2007).

This alternative also would have unacceptable adverse environmental impacts. Opening Parker's cut would result in increased salinities in Matagorda Bay by allowing the inflow of saline Gulf waters during flood tides and the outflow of fresh water from the Colorado River during ebb tides. It would be at odds with the purpose of diverting the Colorado River into Matagorda Bay, which is to enhance the ecology of the bay for the benefit of marine species, particularly those of commercial and recreational importance. Diverting the river into the bay reintroduced fresh water flows, reducing salinity. This alternative was screened out from further consideration early in the screening process as the District had examined this alternative in a previous study that examined potential solutions for reducing currents at the confluence of the navigation channel and the GIWW.

## 2.9 ALTERNATIVE 9 – RECOMMENDED PLAN, CONSTRUCT NEW EAST JETTY

This alternative, which consists of the construction of a new east jetty, is based on the recommendations of a study performed by the Coastal and Hydraulics Laboratory, ERDC. This is the recommended plan and is also the plan that the local sponsor prefers. The construction particulars were discussed in Subsection 1.3 and this alternative will be examined in detail in Section 4.0 to assess the project's potential impacts on the environment. Removing the existing east jetty and using salvaged materials from the existing east jetty to construct the new jetty was considered. However, this would be a prohibitively expensive undertaking and is not economically viable, as it would cost considerably more than bringing in new materials to construct the new jetty.

It is anticipated that this alternative would reduce the shoaling rate and the frequency that maintenance dredging would be needed. This would provide for more consistent, safer navigation conditions at the entrance channel. Additionally, it would offer erosion protection to part of the western shoreline of the Colorado River Navigation Channel that is currently eroding. It should be recognized, however, that although the proposed structure has been designed to minimize the detrimental affects on the entrance channel from natural shoreline processes, there

would be some residual risk and it is possible that weather conditions between dredging cycles, particularly storm events, could still result in episodic shoaling of the entrance channel.

### **3.0 AFFECTED ENVIRONMENT**

#### **3.1 PHYSICAL CHARACTERISTICS AND NATURAL PROCESSES**

The proposed project area is located on the mid-coast of Texas, which includes Matagorda and East Matagorda Bays, the mouth of the Colorado River, and Matagorda Peninsula. The Texas gulf coast has low-lying, dynamic coastal landforms that include barrier islands, peninsulas, offshore sand bars, bays, mudflats, dunes, and shoals. These landforms are subject to the activities of waves, winds, storms, tides, climate, rising sea levels, and human activities.

Coastal erosion is a significant problem along the peninsulas and barrier islands. Human use has drastically impacted coastal landforms, especially with the construction of jetties, breakwaters, groins, seawalls, and dredged shipping channels around major urban areas. Both the displacement of sediment and the lack of sediment cycling between rivers, beaches, and offshore deposits have resulted in a serious coastal erosion problem in Texas, including the degradation of protective barrier islands and peninsulas. Some shorelines in this area are eroding and some are accumulating. This is likely due, in part, to the placement of jetties throughout the region, limiting sand exchange (GLO, 2005).

Historically, the Colorado River emptied into Matagorda Bay. However, a logjam on the river that accumulated large amounts of sediment upstream from Matagorda Bay was broken up in 1929, causing the rapid release of this sediment, which formed a delta across Matagorda Bay to the Matagorda Peninsula (USACE, 1977). This delta now separates Matagorda Bay from East Matagorda Bay. In the mid 1930's a man-made flood discharge channel was cut through the delta and Matagorda Peninsula and the river then flowed into the Gulf of Mexico (Alperin, 1983). The Colorado River was diverted into Matagorda Bay in 1992 to enhance the ecology of the bay for the benefit of estuarine fisheries. This essentially eliminated river flows to the Gulf of Mexico. Consequently, natural flushing of the channel by river flows no longer occurs. Currently, there are no direct connections linking the Gulf to either Matagorda Bay or East Matagorda Bay in the project vicinity. The closest direct link between Matagorda Bay and the Gulf is through the Matagorda Ship Channel, which is approximately 24 miles to the southwest of the project area. The closest direct link between East Matagorda Bay and the Gulf is through Mitchell's Cut at the east end of the bay, about 22 miles northeast of the project site.

The existing jetty system was essentially completed in 1990. The jetties were designed with a sand bypass system and maintenance regime that was intended to minimize the interruption of the predominantly east-to-west natural sand transport processes along the coastline. The 3,500-foot east jetty includes a 1,000-foot weir on the shoreward end of the structure to allow sand to pass westward to an "impoundment basin" between the east jetty and the entrance channel. During maintenance dredging, sediment is dredged from the navigation channel and impoundment basin and is pumped by pipeline down-drift of the jetties, returning sand to the littoral drift system. However, the jetty-weir system has not worked as intended and sand does not enter the impoundment basin as expected.

Sand tends to accumulate in spits on both sides of the entrance channel and extend into the channel, particularly from the east. This is a result of longshore sand transport and wind-blown sand. The area where the new jetty would be constructed was previously the location of the designated navigation channel. Due to shoaling and spit formation on the east side of the entrance channel, the channel has effectively shifted to the west as the designated channel filled in. Much of this area now consists of accumulated sand and only a portion remains shallow water.

The west bank of the navigation channel, shoreward of the west jetty, is eroding. A key cause for this erosion is believed to be wave action. With the large distance between the existing jetty tips, combined with the open weir section of the east jetty, wave energy is not appreciably diminished before waves reach this area, which plays a major role in erosion. Also, with the accumulation of sand and formation of the spit on the east side of the entrance channel, tidal flows have been forced to the west and may be contributing to the erosion problem.

The tidal cycle pattern in the project area is mixed diurnal, meaning the tide pattern ranges from one high tide and one low tide for most days of each lunar month to two high tides and two low tides for some days. Presently, the tidal currents through the entrance channel and jetties are weak and ebb biased (Kraus et al., 2007), the latter meaning the tidal currents tend to be slightly stronger during outgoing tides. Before the Parker's Cut Dam was constructed and Parker's Cut (also known as Tiger Island Channel) was blocked, tidal interchange between Matagorda Bay and the Gulf occurred through the Colorado River channel entrance and this cut. Since the construction of the dam in 1992, however, this tidal exchange has effectively been eliminated. There is now very limited, indirect tidal exchange between the Gulf and the bays occurring through the entrance channel. The volume of tidal waters passing through the entrance channel is relatively small compared to most inlets where there is a connection between the Gulf and bay systems.

There is a consensus among ocean scientists that mean sea levels are rising. Any rise in mean sea levels will result in a corresponding rise in tide levels. Water level records collected at eight locations along the Texas coast for periods of 25 years or more show rising mean sea level trends from 0.67 to 2.47 feet per hundred years (NOAA, 2007). The nearest tidal stations to the project area, Rockport and Freeport, show rising mean sea level trends levels of 1.51 and 1.93 feet per hundred years, respectively.

### 3.2 WETLANDS AND SEAGRASSES

Inter-tidal estuarine wetlands are abundant in and around Matagorda Bay and East Matagorda Bay and there are also saltwater fringe wetlands along portions of the Colorado River Navigation Channel above the project site. The wetlands include plant species such as cordgrass (*Spartina* spp.), and saltwort (*Salicornia* spp.). Seagrasses, including widgeon grass (*Ruppia maritima*) and shoal grass (*Halodule wrightii*) grow in shallow water areas around the bay where water clarity and depth is sufficient to allow adequate light penetration for growth. The closest wetlands and seagrasses to the project site are approximately ½ mile away on the bay side of Matagorda Peninsula. There are no wetlands or seagrasses in the immediate vicinity of the project area, as the environmental conditions of the beach, dunes and surf zone are not suitable for the establishment of these habitat types.

### 3.3 WILDLIFE

The Matagorda Bay area provides feeding and nesting habitat for numerous species of waterfowl and shore birds. The Texas coast is a terminus or stopover for many migratory waterfowl and other birds traversing the Mississippi or Central Flyways. As a result, migratory game and non-game birds are found in large numbers along the Texas Coast during the winter months. Many of these birds stay through winter or rest during migration in the Matagorda Bay system, particularly on Matagorda Peninsula in the Colorado River delta area. Primary species of migratory waterfowl in the area include Canada goose (*Branta canadensis*), white-fronted goose (*Anser albifrons*), snow goose (*Chen hyperborea*), blue goose (*C. caerulescens*), pintail (*Anas acuta*), gadwall (*A. strepera*), blue and green-winged teal (*A. discors*, *A. carolinensis*), mallard (*A. platyrhynchos*), mottled ducks (*A. fulvigula*), shoveler (*A. clypeata*), lesser scaup (*Aythya affinis*), redhead (*A. americana*), and American wigeon (*Mareca americana*). The bays and marshes contain shore and wading birds including pelicans (*Pelecanus* spp.), black skimmer (*Rynchops niger*), white-faced ibis (*Plegadis chihi*), roseate spoonbill (*Ajaia ajaja*) and herons and egrets (*Ardeidae* family) (USACE, 1977). Plovers (*Charadrius* spp.), gulls and terns (*Laridae* family), and sandpipers (*Scolopacidae* family) are common on the beaches along the Gulf Coast.

Marshes and land around the Matagorda Bay estuary, with their associated vegetation, provide food and cover for numerous wildlife species, including nutria (*Myocaster coypus*), otter (*Lutra canadensis*), and muskrat (*Ondatra zibethicus*). In addition, the lands in the area provide habitat for skunk (family Mustelidae), rabbit (*Sylvilagus* spp.), raccoon (*Procyon lotor*), opossum (*Didelphis virginiana*), and armadillo (*Dasypus novemcinctus*). In the immediate project area, there is limited habitat for wildlife species due to lack of vegetative cover on the beach.

Common plant species on the sand dunes and back dune areas near the project site include beach morning glory (*Calystegis soldanella*), salt grass (*Distichlis spicata*), smooth cordgrass (*Spartina alterniflora*), sea oats (*Chasmanthium latifolium*), sea rocket (*Cacile edentula*), and marsh fimbry (*Fimbristylis litoralis*). Sea oats are an abundant and nutritious food source to wildlife species that inhabit dune areas, such as birds, rodents, jackrabbits (*Lepus* spp.) and ghost crabs (*Ocypode quadrata*) (McAlister and McAlister, 1993).

In addition to terrestrial species, marine species in the Gulf of Mexico include marine mammals and fish. The most common marine mammals seen in the project area are bottlenose dolphins (*Tursiops truncatus*). Larger marine mammals, including whales, typically are not seen in the shallow coastal waters of the Gulf. Marine fish are discussed in the following section.

### 3.4 FISHERIES AND ESSENTIAL FISH HABITAT

Shallow bay areas provide important nursery and feeding areas for such commercial and sport species as red drum (*Sciaenops ocellata*), black drum (*Pogonias cromis*), spotted seatrout (*Cynoscion nebulosus*), southern flounder (*Paralichthys lethostigma*), sheepshead (*Archosargus probatocephalus*), and croaker (*Micropogonias undulatus*). Other common fishes include sea catfish (*Arius felis*), mullet (*Mugil cephalus*), bay anchovy (*Anchoa mitchilli*), and squid (*Loligo* sp.). Brown shrimp (*Farfantepenaeus aztecus*), white shrimp (*Litopenaeus setiferus*), and blue crab (*Callinectes sapidus*) are important commercial crustaceans.

Essential fish habitat (EFH) consists of those habitats necessary for spawning, breeding, feeding, or growth to maturity of species managed by Regional Fishery Management Councils, as described in a series of Fishery Management Plans, pursuant to the Magnuson-Stevens Fishery Conservation and Management Act. The Gulf of Mexico Fishery Management Council has identified habitats in the project vicinity as EFH for juvenile and adult red drum, adult Spanish mackerel (*Scomberomorus maculatus*), juvenile and adult white shrimp and brown shrimp, adult pink shrimp (*Farfantepenaeus duorarum*), and juvenile and adult Gulf stone crab (*Menippe adina*).

In addition to EFH, wetlands in the Matagorda Bay system provide nursery and foraging habitat that supports various forage species and recreationally important marine fishery species such as spotted seatrout, flounder, Atlantic croaker, black drum, striped mullet and blue crab. These estuarine-dependent organisms also serve as prey for other fisheries managed by the fisheries management council (e.g., red drum, mackerels, snappers, and groupers) and highly migratory species, such as tunas, billfishes and sharks, managed by the National Marine Fisheries Service (NMFS). EFH for those species that may occur in the project area and may be affected by the proposed action includes the sand substrate at the project site.

### 3.5 THREATENED AND ENDANGERED SPECIES

#### Federally-listed Species

Table 2 summarizes the U.S. Fish and Wildlife Service's (USFWS) list of federally-listed threatened and endangered species for Matagorda County. The bald eagle has been recently delisted but is included here because the protections provided by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act remain in effect. In addition to these species, the NMFS lists the endangered marine species in Table 3 that occur in Texas. Table 4 includes NMFS's list of federal marine species of concern in Texas.

The District prepared a Biological Assessment that addresses the proposed project's potential impacts to these federally-listed threatened and endangered species and species of concern. This document, which is included in Appendix E, includes information on distribution and habitat requirements of these species. Of these species, only the brown pelican and piping plover regularly occur in the project area. The brown pelican is a common resident in the project area. The beach zone in the project area is designated as critical habitat for the piping plover and this species is likely to occur as a winter migrant.

Although the Kemp's Ridley sea turtle is the rarest of the sea turtles, in recent years there has been an increase in reported nesting along the Texas coast. This includes four reported nests on Matagorda Peninsula and eight on Matagorda Island during the 2007 nesting season. Therefore, it is possible that this species could occur at or near the project site during nesting season.

For the remaining species, the likelihood of encountering them in the project area is low to very low, primarily due to the lack of suitable habitat in the project area or the project area's being outside of the known present or historical range and distribution of these species.



**Table 2**  
**USFWS List of Threatened and Endangered Species for Matagorda County**

Common Name	Scientific Name	Listing Status
Bald eagle	<i>Haliaeetus leucocephalus</i>	Recently De-listed
Brown pelican	<i>Pelecanus occidentalis</i>	Endangered
Piping plover	<i>Charadrius melodus</i>	Threatened
Whooping crane	<i>Grus Americana</i>	Endangered
Loggerhead sea turtle	<i>Caretta caretta</i>	Threatened
Green sea turtle	<i>Chelonia mydas</i>	Threatened
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Endangered
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered

Source: USFWS 2007

**Table 3**  
**Endangered Marine Mammals and Fish in Texas**

Common Name	Scientific Name
Blue whale	<i>Balaenoptera musculus</i>
Finback whale	<i>Balaenoptera physalus</i>
Humpback whale	<i>Megaptera novaengliae</i>
Sei whale	<i>Balaenoptera borealis</i>
Sperm whale	<i>Physeter macrocephalus</i>
Smalltooth sawfish	<i>Pristis pectinata</i>

Source: NMFS (2007a)

**Table 4**  
**Marine Species of Concern in Texas**

Common Name	Scientific Name
<b>FISH</b>	
Dusky shark	<i>Carcharhinus obscurus</i>
Large-tooth sawfish	<i>Pristis pristis</i>
Night shark	<i>Carcharhinus signatus</i>
Saltmarsh topminnow	<i>Fundulus jenkinsi</i>
Sand tiger shark	<i>Carcharias taurus</i>
Speckled hind	<i>Epinephelus drummondhayi</i>
Warsaw grouper	<i>Epinephelus nigritus</i>
White marlin	<i>Tetrapturus albidus</i>
<b>INVERTEBRATES</b>	
Ivory bush coral	<i>Oculina varicosa</i>

Source: NMFS (2007a)

### State-listed Species

Table 5 is a list of additional state-listed rare species that may potentially occur at or near the project site as a resident or migrant. These species are among species in Matagorda County designated as threatened and endangered by Texas Parks and Wildlife Department (TPWD).

Habitat requirements for these state-listed species were previously described by USACE (2003b) in the Environmental Assessment (EA) for the sediment training structure. The American peregrine falcon and the Arctic peregrine falcon have been federally delisted but maintain the state listing status. There is a potential for either of the falcons to occur as migrants in the area, with the Arctic peregrine the more likely to occur.

The reddish egret favors brackish marshes and shallow salt ponds and tidal flats. It nests on the ground or in trees or bushes, generally on dry coastal islands in brushy thickets of yucca and prickly pear.

The sooty tern occurs predominately "on the wing" in the project area. This species does not dive, but snatches small fish and squid with its bill as it flies or hovers over water. Breeding occurs from April through July.

**Table 5**  
**Potential State-Listed Rare Species for Matagorda County**

<b>Species</b>	<b>State Status</b>	<b>Potential Occurrence</b>
American peregrine falcon ( <i>Falco peregrinus anatum</i> )	Endangered	Unlikely Migrant
Arctic peregrine falcon ( <i>Falco peregrinus tundrius</i> )	Threatened	Possible Migrant
Reddish egret ( <i>Egretta rufescens</i> )	Threatened	Possible Resident
Sooty tern ( <i>Sterna fuscata</i> )	Threatened	Possible Migrant
White-faced ibis ( <i>Plegadis chihi</i> )	Threatened	Unlikely Migrant
White-tailed hawk ( <i>Buteo albicaudatus</i> )	Threatened	Unlikely Migrant
Wood stork ( <i>Mycteria americana</i> )	Threatened	Unlikely Migrant

Source: USACE (2002)

The white-faced ibis prefers freshwater marshes, sloughs, and irrigated rice fields, but will attend brackish and saltwater habitats. It nests in marshes, in low trees, on the ground in bulrushes or reeds, or on floating mats.

The white-tailed hawk is generally found near the coast on prairies, cordgrass flats, and scrub-live oak. It is also found further inland on prairies, mesquite and oak savannas, and mixed savanna-chaparral. Breeding takes place from March through May.

The wood stork forages in prairie ponds, flooded pastures or fields, ditches, and other shallow standing water, including salt water. It usually roosts communally in tall snags, sometimes in association with other wading birds (e.g., in active heronries). It breeds in Mexico, and birds move into the Gulf states in search of mud flats and other wetlands, even those associated with forested areas. The wood stork formerly nested in Texas, but no breeding has been documented since 1960.

### 3.6 CULTURAL RESOURCES

Previous surveys in the project area include a reconnaissance boat survey in 1973, a marine magnetometer survey in 1977, and a terrestrial magnetometer survey of the beach in 1979, all conducted at the request of the District. These surveys did not identify any cultural resources. The area of potential effect for the proposed project does not include any cultural resources listed on, eligible for listing on, or currently unevaluated for listing on the National Register of Historic Places. Further, if any cultural resources had been present previously, the construction of the jetties and entrance channel in the late 1980's and the construction of the sediment training structure in 2003 most likely would have resulted in the destruction of any cultural resources.

### 3.7 AIR QUALITY AND NOISE

Existing ambient air quality is good in the project area because of the rural nature of the area, lack of heavy industry, and relatively sparse populations. The Texas Commission on Environmental Quality reports that Matagorda County has met the U.S. Environmental Protection Agency's national air quality standards for "criteria pollutants". Criteria pollutants are common air pollutants for which the U.S. Environmental Protection Agency has established standards to regulate air quality. These include sulfur dioxide, carbon monoxide, nitrogen dioxide, ground-level ozone and suspended particulates.

Because of the rural nature of the area, noise levels are relatively low. Human-generated ambient noise is primarily produced by vessels using the entrance channel and by motor vehicles and recreational activities at the adjacent park facilities. Periodic noise is also generated by dredging operations during dredging cycles. This noise is comparable to noise produced by commercial vessels using the channel.

### 3.8 WATER AND SEDIMENT QUALITY

The project site is located at the point where the Colorado River previously emptied into the Gulf of Mexico. Since completion of the upstream dam and diversion channel, the river no longer flows into the Gulf. Therefore, the water quality is influenced almost entirely by tidal flows to and from the Gulf. There are no industrial or municipal discharges in the project vicinity to degrade water quality. Historical data, with respect to metals, several pesticides and polycyclic aromatic hydrocarbons, indicate that the water quality is good. (USACE, 1994, 1995, 2003a). The results of the most recent water, elutriate and sediment tests, showing concentrations of detected compounds, are included in Appendix C.

Several miles upstream of the project area, below the channel's confluence with the GIWW, seasonal low levels of dissolved oxygen result in recurring fish kills, mostly menhaden. These events typically occur in mid to late summer when water temperatures are high and wind velocities and precipitation are low. These conditions cause oxygen levels to drop because of warm water's reduced ability to hold dissolved oxygen and lack of mixing by rain and wind. Exacerbating the problem, algae blooms contribute large amounts of organic matter, which lowers oxygen levels further due to increased consumption of oxygen by micro-organisms involved in decomposition of dead algae. Large masses of menhaden feeding on the algae further increase consumption of oxygen.

The sediments at the project site consist primarily of recently deposited sands transported by littoral currents and lesser amounts of finer material from the navigation channel and GIWW (Kraus, et al., 2007). Historical sampling data (USACE, 1994, 1995, 2003a) indicate that sediment quality is good. Sediment data from the most recent elutriate sampling are included in Appendix C.

### 3.9 HAZARDOUS, TOXIC AND RADIOACTIVE WASTE (HTRW)

The District performed a Hazardous, Toxic, and Radioactive Waste (HTRW) assessment of lands and water resources in and adjacent to the study area in October, 2007. The objective was to identify the existence of potentially hazardous sites or facilities, hazardous contamination, and materials of concern that could impact or be impacted by the proposed project. The assessment included an interagency site visit on May 30, 2007, a review of regulatory agency data, and a review of aerial photographs. No visual signs of environmental contamination, including spills or illegal waste disposal, were detected during the site visit.

The regulatory agency data review identified an unauthorized landfill located in the Culver Development, approximately 0.25 mile northeast of the project area. This one-acre site contains household waste, and the local residents were identified as the primary responsible parties. The dates of the first and last use of the landfill are unknown. No oil/gas wells or pipelines were identified within a 1.0-mile radius of the project area. The closest potable water well is located approximately 2000 feet northeast of the project area, near the western terminus of the beachfront residential zone.

A review of aerial photographs indicates that the project area and adjacent lands were essentially undeveloped up to 1943, with the exception of a primitive road linking the area to the town of Matagorda, Texas. Surrounding areas within the vicinity of the project area slowly developed and a number of residential structures are evident by 1954. Residential structures increased in number by 1978, after which development somewhat stabilized, as evidenced by 1991 and 1995 photography. By 1991, the jetties and adjacent Matagorda Bay Nature Park were in place. Photos from 2006 reveal that the park was upgraded with the addition of a campground for recreational vehicles.

### 3.10 SOCIOECONOMICS

The town of Matagorda is a relatively small community with a population that is seasonally variable due to the influx of visitors pursuing recreational activities as described below in Section 3.13. This unincorporated area had a reported resident population of 710 inhabitants in 2000 (Handbook of Texas Online, 2007). Matagorda Bay, East Matagorda Bay, the Colorado River, and associated waterways in the project area are used extensively by resident and visiting recreational boaters. The navigation channel entrance is used by recreational and commercial fishing vessels to transit between the Gulf of Mexico and various docking and launching facilities in the Matagorda area. Area bait and tackle shops, such as those along the old Colorado River channel and at Matagorda Harbor, depend on recreational fishers for their business. Other businesses, such as restaurants and hotels are patronized by visitors, including recreational fishers. There are no significant manufacturing or industrial facilities in the Matagorda area.

### 3.11 ENVIRONMENTAL JUSTICE

In compliance with Executive Order (EO) 12898, Federal Action to Address Environmental Justice in Minority and Low-Income Populations, an analysis was performed to determine whether the proposed project will have a disproportionate adverse impact on minority or low-income population groups in the vicinity of the project area. This analysis consisted of determining characteristics of residential populations in the project area.

The proposed project site is located within the footprint of an existing Federally-maintained navigation project, adjacent to Jetty Park, a Matagorda County public park. The site is located in a sparsely populated area. The nearest residential area is located to the northeast, about a quarter mile from the site.

The project area is in Matagorda County, which has a population of 37,957 living in 13,901 households, based on the 2000 Census (USCB, 2000). The project area is located within census tract 7305, which includes the town of Matagorda and areas to the east of the Colorado River. The households in this tract are concentrated mainly in the town of Matagorda but residences are located along FM 2031 and in beach subdivisions to the northeast of the project site. A breakdown of the population by ethnic group is shown in Table 6. For comparison, the breakdown for Matagorda County and the State of Texas are shown, also. The table also shows median income and the percent of families living below poverty level. The table shows that there are minority and low income populations in the project area.

**Table 6**  
**Demographic Information**

	Census Tract 7305	Matagorda County	State of Texas
<b>Ethnicity</b>			
White	79.6 %	67.8 %	71.0 %
African American	13.3 %	12.7 %	11.5 %
Native American	0.8 %	0.7 %	0.6 %
Asian	0.1 %	2.4 %	2.7 %
Pacific Islander	0.1 %	<0.1 %	0.1 %
Other	4.4 %	14.0 %	11.7 %
Two or more races	1.7 %	2.4 %	2.5 %
Hispanic or Latino Origin	7.4 %	31.3 %	32.0 %
<b>Income &amp; Poverty</b>			
Median Income, 1999	\$29,085	\$32,573	\$39,927
Families Below Poverty, 1999	11.8 %	18.3 %	12.0 %

Source: (USCB, 2000)

Based on the census figures, the population in the project area consists of a lower percentage of minorities (non-white) and persons of Hispanic or Latino origin than in Matagorda County or the state. Of the population living in Census Tract 7305, 20.4 percent are minorities,

as compared to 32.2 percent in Matagorda County and 29.1 percent for the state. The percentage of persons of Hispanic or Latino origin in the census tract is less than one third of either the county or state.

The median income for the census tract is lower than for Matagorda County and for the state. However, the percent of families living below the poverty level within the census tract is comparable to the state as a whole and considerably lower than for the county.

### **3.12 PRIME AND UNIQUE FARMLANDS**

The area that would be affected by the proposed project does not include any land or soil suitable for farming activities since the project area consists of un-vegetated sand and shallow marine waters of the Gulf of Mexico. Further, the soils in the area have elevated salt content due to the influence of saltwater from the Gulf.

### **3.13 RECREATIONAL RESOURCES**

The Colorado River Navigation Channel is used by recreational boaters for access to the Gulf of Mexico, primarily for offshore fishing. A county park is located next to the project site. Principal recreational activities in the area include beach-going activities, picnicking, fishing, and bird watching. The park also includes RV camping facilities and hiking trails. The existing east jetty and elevated walkway are used for fishing and sight seeing. The west jetty is not accessible except by boat. Presently, although the spit is not within the park boundaries, the public uses the spit for access to the shoreline, particularly recreational fishers.

### **3.14 ROADWAYS AND TRAFFIC**

The project area is directly served by only one overland route, consisting of State Highway 60 into the town of Matagorda and FM 2031. The latter runs from the town along the narrow corridor of higher ground on the Colorado River delta to the beach. FM 2031 crosses the GIWW via a pontoon swing bridge. This bridge will be replaced by a high-clearance fixed bridge that is currently under construction and expected to be completed in October 2008. FM 2031 is a two-lane road bordered on the west by residences, vacation rental properties, and a few businesses for about 3 miles of its 6-mile length. It provides access to the coastal residential communities to the northeast of the project site. The area is rural, sparsely populated, and the road is not a through route to other destinations, traffic is light and consists primarily of non-commercial vehicles.

## **4.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION**

### **4.1 IMPACTS ON PHYSICAL CHARACTERISTICS AND NATURAL PROCESSES**

#### **Landform and Coastal Processes**

The proposed new east jetty would have a direct impact on littoral drift processes, as is the case with the existing jetties. The new jetty structure would constitute a significant barrier to littoral movement of sand along the coast. While substantially less sand would reach the entrance channel, reducing the rate of shoaling in the entrance channel, sand would accumulate in the area immediately to the east of the new jetty. Sand would continue to pass through the



weir section of the existing east jetty in a predominantly westward direction. This movement would be interrupted by the new jetty. Further, the higher landward portion of the new jetty would reduce wind-blown sand movement to the west and wind-blown sand would tend to accumulate on the beach.

To minimize the impacts of the proposed new jetty on sand movement along the coast, the District would bypass sand to the surf zone placement area to the west of the west jetty. The placement of material in the surf zone would return sand to the littoral drift system and minimize the project's effects on the shoreline downdrift of the project site. A review of historical wave data shows how variable wave conditions are over time. Shoreline change is also variable over time, in response to ambient wave conditions. Episodic events, such as tropical storms, can cause dramatic and immediate shoreline changes. While it is not possible to predict future shoreline position with absolute certainty, integrated numerical modeling that incorporates known variables that affect shoreline change can be used to simulate future site conditions and predict trends in future shoreline changes.

ERDC used modeling to simulate shoreline change in the project area with and without sand bypassing, using historical wave data from two 10-year time periods, 1980 to 1989 and 1990 to 1999 (Kraus et al., 2007). The model assumed mechanical bypassing of 400,000 cubic yards of material from the east side of the proposed new jetty every two years over 10-year intervals. Figures 7 and 8 show predicted shoreline positions 10 years after construction of the new east jetty based on each of the wave data sets. Under both of the above model scenarios, the model shows substantial accumulation of sand to the east of the new east jetty after 10 years and substantial shoreline recession west of the west jetty without sand bypassing. With sand bypassing, the model scenario using wave data from 1980 to 1989 shows a small amount of sand accumulation to the east (Figure 7) but the scenario using wave data from 1990 to 1999 shows a substantial amount of sand accumulation (Figure 8). The model shows considerably less shoreline recession after 10 years to the west of the jetties with sand bypassing under both scenarios.

Historically, the trend in shoreline change in the project area has been that of a receding shoreline. Shoreline studies conducted before the construction of the jetties found that the shoreline west of the Colorado River was receding at a rate of 10.5 feet per year (Morton et al., 1976). Hence, even with sand bypassing, the shoreline likely would continue to recede due to processes and conditions outside the control or scope of the proposed project. The planned sand bypassing would ensure that the existing longshore sand budget to the west is maintained to the extent practicable and that the interruption of littoral drift would be minimal.

### Tides

The proposed new jetty would concentrate tidal flows through a narrower cross-sectional area at the entrance to the navigation channel than with the existing jetty configuration. Regional circulation models run by ERDC show that the proposed jetty configuration would result in slight increases in the velocity of tidal currents and would also cause tidal flows to be more ebb biased (Kraus et al., 2007). The proposed narrowing of the entrance channel from 200 feet to 150 feet would enhance this effect. ERDC modeling also shows that changes in water levels due to the proposed jetty configuration and narrower entrance channel would be negligible.

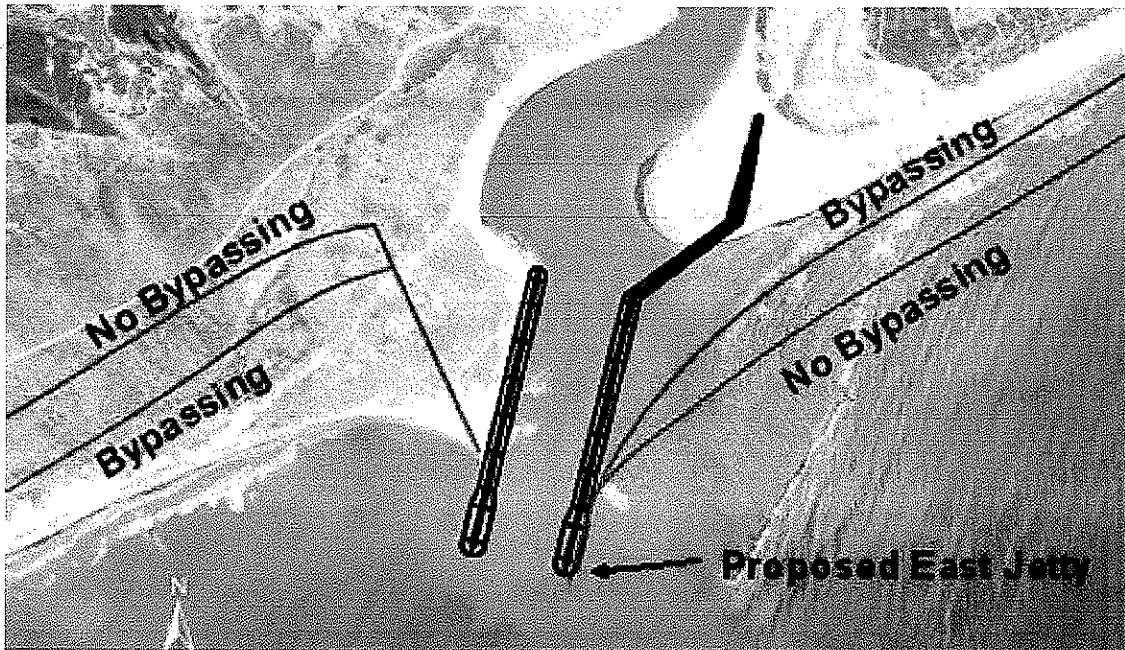


Figure 7 – Predicted shoreline position based on 1980 to 1989 historical wave data

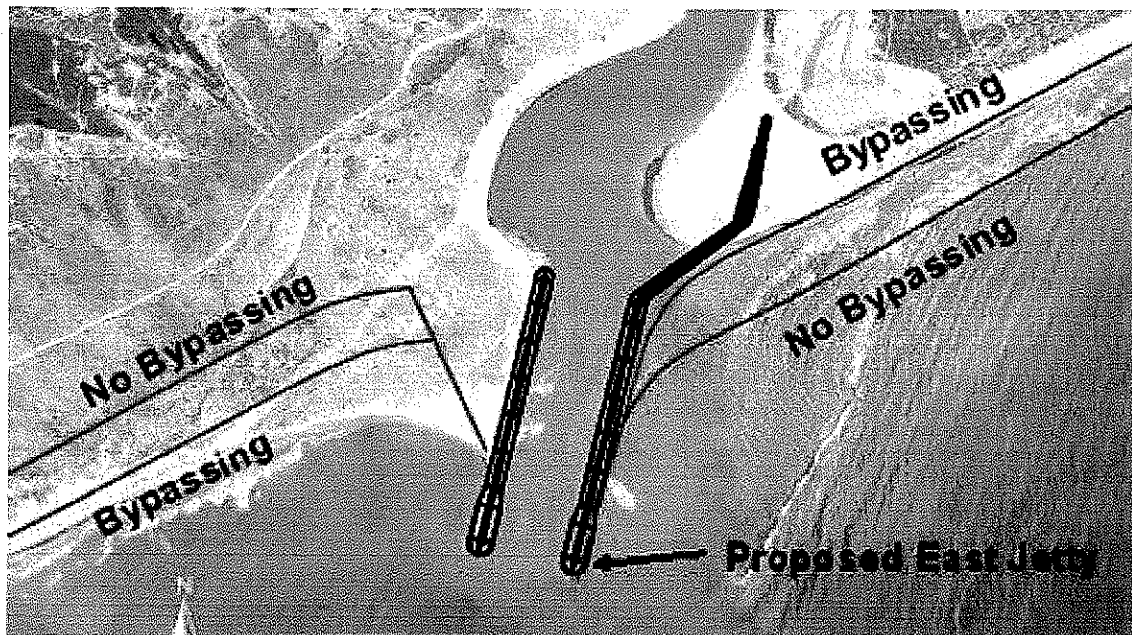


Figure 8 – Predicted shoreline position based on 1990 to 1999 historical wave data

#### Sea Level Rise

The design of the proposed new east jetty has taken sea level rise into account. The cover stone weight was determined with a conservative stability equation for waves that would occur at a water level 1.9 feet above the Federal Emergency Management Agency's predicted 50-year

level (Kraus et al., 2007). Applying both the more conservative stability equation and the additional 1.9 feet of freeboard provide an adequate safety factor for jetty stability with respect to future sea level rise.

#### 4.2 IMPACTS ON WETLANDS

There are no wetlands in the immediate vicinity of the project site. Therefore, no direct impacts to wetlands will occur and no secondary impacts to wetlands outside the project area are anticipated.

#### 4.3 IMPACTS ON WILDLIFE

The proposed jetty and reconstructed channel would not have significant adverse impacts on wildlife in the area. There would be temporary, minor disturbance during construction but species that do not tolerate disturbance would avoid the area during this time. The project area does not contain any scarce or unique feeding or reproductive areas. The habitat in the project area is similar to the habitat found extensively in the region and does not represent a significant portion of this type of habitat. Therefore, the temporary disturbance would be negligible. The completed structure would result in accretion of additional beach area and would provide erosion protection to the west shoreline of the entrance channel. In this respect, it would be beneficial to certain wildlife, such as shorebirds that use these types of habitats, including piping plover.

#### 4.4 IMPACTS ON FISHERIES AND ESSENTIAL FISH HABITAT

Permanent impacts include the elimination of a small amount of shallow water bottom habitat since much of the new jetty would be constructed on accumulated sand. Since the area of accumulated sand is constantly and rapidly shifting, it is not possible to predict the precise amount of open water that will remain within the footprint of the jetty construction area by the time construction begins. It is likely that the jetty would cover a small area of shallow water habitat in the surf zone but it is also possible that the entire structure would be constructed on accumulated sand due to additional sand accumulation by the time construction begins. After construction, and once the area has stabilized, much of the rock material would provide a hard surface area that would serve as a substrate for algae and other organisms that are food for fish.

Short-term adverse impacts to fisheries would be experienced during construction activities. Equipment noise and activity would result in disturbance in the immediate construction area to some fish species. However, these effects would be temporary and would cease when construction activities are completed. Temporary increases in turbidity would be expected during construction, but any additional turbidity resulting from work performed within the surf zone and would be inconsequential because organisms adapted to living in the constantly shifting habitat are also adapted to large variations in turbidity.

The habitat of any benthic organisms presently occupying the proposed jetty footprint would be permanently eliminated by the construction of the jetty. The impacts caused by the dredging of the flotation channel would be temporary and would be comparable to those of current dredging operations. Bottom habitat would be temporarily eliminated but would eventually recover after construction. Organisms adapted to life in this shifting environment are also adapted to quickly re-colonize any new area or habitat in the area. These impacts are

considered to be minor and, overall, adverse impacts of the proposed action on fisheries also would be minor.

The proposed action would not likely have direct impacts on managed species and would affect EFH only minimally and temporarily. There would be no impacts to marsh or nursery areas. A small amount of bare, sandy bottom in the surf zone and Gulf would be covered and replaced by the rock jetty structure and additional areas would temporarily be disturbed during the construction and operation of the access channel. In addition, aquatic bottom habitat would be covered by additional sand that is expected to accrete up-drift (east) of the new jetty, as is presently occurring. The amount of bottom surface disturbed would be insignificant considering the amount of bottom habitat available in the area. The rock structure would provide a significant amount of surface area that would serve as a substrate for algae and other organisms that serve as food for managed species. Since potential impacts are expected to be temporary and minor in individual or cumulative effects, mitigation for these impacts would not be necessary. This draft EA will serve to initiate EFH consultation with NMFS.

#### 4.5 IMPACTS ON THREATENED AND ENDANGERED SPECIES

The District assessed the proposed project's potential to affect federally-listed threatened and endangered species and species of concern in a Biological Assessment (Appendix E), which was submitted to the U. S. Fish and Wildlife Service for review. The District's overall conclusion is that the proposed project is not likely to adversely affect any federally-listed threatened or endangered species, nor will it adversely modify critical habitat. Also, the project is not likely to adversely affect any species of concern.

The proposed project is located within and adjacent to designated critical habitat for wintering piping plover. However, the project is not likely to adversely affect the piping plover or critical habitat. Measures to avoid and minimize impacts to piping plover would be implemented during construction and maintenance activities (see Section 5.4 and Appendix E for details). The duration of impacts from construction activity would be relatively short and piping plovers are adaptable enough to shift foraging areas to avoid the immediate construction site. In the long-term, the completed structure is expected to be beneficial to designated critical habitat. Once constructed, the new jetty will cause sand to accrete on the beach to the east of the structure, nourishing the beach and providing additional foraging areas for the piping plover.

The District expects the project to be beneficial to piping plover Critical Habitat Unit TX-23, on the west bank of the Mouth of the Colorado River. The structure would act as protection to the west bank of the river, which currently experiences significant erosion along the northern end of the west jetty. In addition, the reduction in shoaling rate would also be beneficial to the piping plover. While material excavated during maintenance dredging would continue to be used to nourish the beach within Unit TX-23, the need to access the site with the construction equipment needed to place dredge pipelines would be reduced from an annual or more frequent basis to once every two years.

While sea turtles may occur in the project area, the proposed project is not likely to adversely affect any of these species. Maintenance dredging in the entrance channel would be conducted using cutterhead dredges, which move at slow enough speeds that turtles would be able to move out of the way of the cutterhead. If construction or maintenance activities in the beach zone occur during the nesting season for these species, avoidance and minimization

measures (see Section 4.5 and Appendix E) would be implemented to reduce the potential impact on these species and help to ensure that the project is not likely to adversely affect sea turtles.

Although several other threatened or endangered species may occur in the project vicinity, no regularly used habitat is known to exist in the immediate project site, primarily due to the lack of suitable habitat or the project's location in relation to these species' known current or historical distribution. Should any of these species wander into the project vicinity, the size and mobility of these animals would allow them to avoid the immediate project site during construction and maintenance operations.

State-listed rare species, including the American and Arctic peregrine falcons, reddish egret, sooty tern, white-faced ibis, white-tailed hawk and wood stork, could possibly be found in the project vicinity as migrants. However, no regularly used habitat would be affected and any effects on these species would be minor and of short duration.

#### 4.6 IMPACTS ON HISTORIC RESOURCES

The proposed work was coordinated with the Texas State Historic Preservation Office (SHPO). The SHPO concurred that the proposed project would have no effect on any historic properties. Should any cultural resources be discovered during construction, the construction contractor would immediately stop all work in that area and notify the District. The District would initiate coordination with the SHPO, as necessary.

#### 4.7 IMPACTS ON AIR QUALITY AND NOISE

##### Air Quality

Temporary increases in exhaust emissions would occur during construction activities due to the operation of construction equipment. These increases are minor in nature and would be temporary, occurring only during the construction period. These emissions are not expected to significantly impact the area's ambient air quality nor impact the area's designation as being in attainment with the EPA's national air quality standards. Since maintenance dredging would be done on a 2-year cycle rather than on an annual basis as has been done in the past, there would be a decrease in equipment exhaust emissions associated with maintenance operations in the long term.

##### Noise

Dredging equipment and equipment required to transport and place the construction material would be the primary sources of noise from the proposed activities. There would also be additional noise generated by truck traffic through the town of Matagorda and along FM 2031 if construction materials are transported by truck. These impacts are expected to be minor in nature and would be temporary, occurring only during the construction period and typically only during daylight hours. Noise impacts from future maintenance operations would be at similar levels as previous operations but they would be less frequent, since maintenance would be conducted on a 2-year cycle rather than on an annual basis as in the past with the existing project.

#### 4.8 IMPACTS ON WATER AND SEDIMENT QUALITY

Ordinarily, some elevation in turbidity is expected to result from movement of work boats and equipment in shallow water, and possibly through some displacement of bottom sediments from placement of the rock. However, since the work would be conducted within the surf zone, which is regularly subject to turbulence from wave action, any such re-suspension of sediments is expected to be negligible and would be noticeable only on a calm day. Any re-suspension is expected to be intermittent and localized, much less than that caused by breaking waves. The dredged material consists of uncontaminated sands moving along the coast by natural processes and finer material eroded from the navigation channel.

Turbidity would increase in the surf zone in the placement area when dredged material is being discharged. This impact would be temporary and the effect would be the same as with the existing project. After dredging operations are completed, the suspended materials would disperse with the longshore currents. Since the required frequency of dredging would be reduced to every two years with the proposed project as opposed to annually with the existing project, the frequency of increased turbidity consequently would be lessened.

Except for increased turbidity, construction of the proposed jetty would have no significant adverse impacts on water and sediment quality. The construction material would be comprised of clean, inert natural rock taken from rock quarries so no impacts are expected from this material. Any impacts from the placement of materials are expected to be minor in nature and would be temporary, occurring only during the construction period. These impacts would be more than offset by the long-term decrease in dredging frequency that would result from the finished structure.

#### 4.9 IMPACTS FROM HAZARDOUS, TOXIC AND RADIOACTIVE WASTE (HTRW)

Research and site investigations conducted to determine whether HTRW are located in or near the proposed project indicate there are no sites of concern at or immediately adjacent to the property. The unauthorized landfill mentioned in Section 3.9 is not in the immediate vicinity of the project and would have no impact on the project. The potential and severity of encountering HTRW is considered low. The rock used for construction would be virgin material removed from rock quarries and would have no associated hazardous, toxic or radioactive materials. No further HTRW investigations are warranted at this time.

During the operation of construction and maintenance equipment, there is a slight potential for accidental spills of small amounts of fuel, lubricants, coolants, or hydraulic fluids. The contractor would be required to immediately contain and clean up any such spills.

#### 4.10 IMPACTS ON SOCIOECONOMICS

There would be minimal adverse effects from the planned construction on vessel traffic within the navigation channel. The present use of the channel by commercial and recreational vessels is light and only brief delays may be expected during set-up of dredging equipment during construction and maintenance operations. The proposed action would not restrict access to the general area for commercial or recreational boating. The project would have a beneficial effect on local navigation. The channel would shoal at a slower rate, providing a safer and more reliable route of navigation. The lower shoaling rate would also mean less frequent dredging,

along with the reduction in additional impediments to navigation caused by the dredging equipment.

The completed project would provide for a more reliable entrance channel, allowing for safe passage of vessels between the Gulf and the Colorado River Navigation Channel, particularly for deeper draft vessels that are presently unable to use the entrance channel as it now exists. This would have a potential positive effect on the local economy. A reliable connection between the navigation channel and the Gulf would allow previous levels of use by commercial and recreational vessels, thereby allowing for a return to previous levels of recreational and commercial activities. Although the District has not done any studies on the negative impacts that may have occurred to the local economy due to the persistent shoaling of the entrance channel, any such impacts would tend to be alleviated by the elimination or reduction of shoaling.

#### 4.11 IMPACTS RELATING TO ENVIRONMENTAL JUSTICE

Any direct adverse impacts on human populations caused by the project would be minimal and would be distributed among all population groups within the project area. As discussed in Section 3.11, the ethnic breakdown in this area is not significantly different from that of the county as a whole or of the state. Accordingly, the project would not have a disproportionate adverse impact on minority or low-income population groups. The project is expected to have a positive impact on all population groups by providing safer navigation in the entrance channel.

#### 4.12 IMPACTS ON PRIME AND UNIQUE FARMLANDS

Due to the location of the project site and the lack of suitable land for farming activities, the project would not have any impacts on prime or unique farmlands.

#### 4.13 IMPACTS ON RECREATIONAL RESOURCES

During the construction period, heavy equipment and machinery would be conducting operations on the beach and in the water. The immediate area of the project may be hazardous due to lifting and placement of heavy materials. Service boat traffic would also be increased. These conditions would necessitate a higher level of vigilance on the part of the public. Public access to the beach and surf zone at construction site would be restricted during the construction period. However, these impacts are expected to be minor in nature and would be temporary, occurring only during the construction period.

Following the construction period, the presence of the new jetty would result in an increase in the beach area east of the new jetty through accretion. This would be additional beach for public recreational use. The proposed structure is not intended for public access but people would probably use it as a platform for recreational fishing. The completion of the project will afford safer, more reliable access to the Gulf waters for recreational boating, particularly for offshore fishing and sailing. The walkway on the existing east jetty will remain in place and would continue to be maintained.

#### 4.14 IMPACTS ON ROADWAYS AND TRAFFIC

During construction, if construction materials are transported to the site by truck, there would be an increase in truck traffic through the town of Matagorda and on FM 2031. Depending on the volume of truck traffic, there could be minor damage to roads caused by increased use by heavy trucks. The contract for the construction of the project would include provisions for repairing any damage caused to roads during construction activities. Therefore, any damage to roadways would be temporary.

#### 5.0 MITIGATION

The proposed project would not impact wetlands, seagrass beds, or other special aquatic sites. There would not be any significant adverse impacts to other resources. Therefore, compensatory mitigation would not be required. The following management measures would be implemented during construction and maintenance operations to avoid and minimize any adverse impacts to endangered species:

- Contractors will have all construction workers trained by qualified personnel to recognize protected species, including shorebirds, nesting sea turtles and their tracks. Workers will also be trained on the avoidance and minimization measures required during project construction.
- Contractors will provide USACE with the name of a single point of contact (POC) responsible for communicating, monitoring and reporting on endangered species issues during construction, including an activities log. This POC will stop work in the event sea turtles, their nests or their eggs are found. The POC will safeguard any turtle eggs until they can be relocated by the appropriate, permitted individuals. In addition, this POC will ensure that no piping plovers are affected by work activities and ensure loafing and/or resting birds are not in the project area during construction.
- Material placed on the beach will be predominantly beach quality sand consistent in grain size, color and composition with the existing beach sand and be free of hazardous materials.
- Materials and equipment required for the project will be staged in upland areas, not on the beach, and transported as needed to the work sites. There will be no overnight storage of equipment on the beach.
- The number of vehicles transiting from the upland staging area to the project site will be kept to a minimum, all vehicles will use the same pathway whenever possible, and vehicle access will be confined to the immediate needs of the proposed project.
- Placed dredged material will be maintained at a gradual slope and after project completion, all mud or wind tidal flats and/or project sites seaward of the mean high tide line will be restored to pre-construction slope or contours and all ruts will be removed.
- No beach nourishment activities will be conducted during the peak sea turtle nesting season, from April 1 through July 15.



- Any construction activities conducted during the remainder of the sea turtle nesting season (from July 15 through September 30) would require implementation of the following additional avoidance measures:
  - An independent, qualified monitor or monitors will be hired and trained by the contractor to monitor all construction activities, escort construction vehicles to and from work sites, and monitor for the presence of threatened and endangered species. The trained monitor will survey the beach daily for sea turtles, sea turtle tracks, sea turtle nests, and shore birds prior to the initiation of any construction activity, and periodically throughout the day. The monitor will keep a daily log, documenting all surveys conducted during the beach construction project.
  - Contractors will smooth out ruts in the beach at the end of each construction day.
  - Use of night lights will be minimized, directed toward the construction activity area, and shielded from view outside of the construction area.

## 6.0 CUMULATIVE IMPACTS

While sand would accumulate along the eastern side of the proposed new jetty, this would have a minimal effect on the littoral sediment budget as long as sand bypassing is accomplished. Therefore, no significant adverse cumulative impacts to environmental resources are expected as a result of project implementation. Environmental benefits identified in this EA should accrue in several resource areas, most notably to some biological resources.

Similar past projects along the Texas coast include other Federally-maintained inlets with jetty systems. These include Freeport Channel to the north and the Matagorda Ship Channel to the south. The primary potential impacts of any coastal jetty system include affects on littoral transport of nearshore sediments, which can have associated coastal erosion downdrift of the structures. The proposed project will avoid any significant additional adverse impacts in this regard. The effects of these other jetty structures on littoral processes are beyond the scope of this study.

Other jetty impacts include conversion of shallow-water surf zone habitat to hard intertidal to supertidal substrate. The proposed jetty would occupy a small area of un-vegetated surf zone Gulf bottom and the amount of loss of this type of habitat would not be significant, either from the proposed project or from all projects combined. Cumulatively, the loss of this type of habitat from jetty projects along the Texas coast represents an insignificant portion of total available habitat of this type. Since the Gulf of Mexico has relatively little hard substrate, the creation of this type of habit adds more habitat diversity, which is a beneficial impact.

Foreseeable future projects in the vicinity of the proposed project area include a proposed cut, or connection, between the Colorado River Navigation Channel and the southwest portion of East Matagorda Bay (the Southwest Cut) and a proposed cut in the Colorado River Diversion Dam (the Diversion Dam Cut). Both of these projects were subjects of Federal studies investigating alternatives to alleviate tidal currents at the intersection of the GIWW and the Colorado River Navigation Channel. The District determined that these alternatives would not meet the federal objective of reducing currents to improve navigational safety. However, local interests are pursuing the implementation of these projects as non-Federal projects. The

Southwest Cut project is expected to benefit fishery resources by providing additional access for aquatic species between East Bay and the Gulf of Mexico. The Diversion Dam Cut would provide access to Matagorda Bay for recreational vessels while enabling these vessels to avoid the Colorado River Locks.

The Southwest Cut was modeled by ERDC to determine its effects on tidal flows at the Mouth of the Colorado River. If the Southwest Cut project is implemented, it would add to the ebb bias and current velocities of the proposed jetty project. This would be beneficial to the channel's ability to self-scour.

The effects of the Diversion Dam Cut on the jetty project were not modeled. However, since the cut would introduce a small amount of additional flow to the Colorado River Navigation Channel, it would be expected that it would likely have similar beneficial affects to tidal ebb flows as the Southwest Cut. It would redirect into the Colorado River Navigation Channel a small amount of the river's flow, which was eliminated when the river was diverted into Matagorda Bay. It is also possible that the introduction of flowing water to the upper navigation channel would help alleviate the water quality issues discussed in Section 3.8.

## **7.0 RELATIONSHIP TO OTHER FEDERAL PROJECTS**

This plan is part of the Mouth of the Colorado River Project which is a Federally-maintained navigation channel. The purpose is to increase the efficiency of operations and maintenance of this project. There are no other Federal projects directly affected by this plan.

## **8.0 COMPLIANCE WITH PLANNING AND ENVIRONMENTAL REQUIREMENTS**

### **8.1 PLANNING REQUIREMENTS**

The planning of the proposed project is in accordance with USACE's "Actions for Change" policies. Plan formulation has been based on a comprehensive systems approach and potential direct and indirect affects inside and outside the project area have been considered. Risk and uncertainty have been considered in evaluating alternatives, which are discussed in this document. The proposed plan has been selected based on inter-disciplinary coordination that utilizes the best professional and technical expertise available during the planning process.

### **8.2 ENVIRONMENTAL REQUIREMENTS**

This assessment has been prepared to satisfy the requirements of all applicable environmental laws and regulations, and has been prepared in accordance with the Council on Environmental Quality's implementing regulations for the National Environmental Policy Act (NEPA), 40 CFR Parts 1500 – 1508, and USACE Regulation ER 200-2-2, *Environmental Quality: Procedures for Implementing NEPA*. The planning and implementation of the proposed project is consistent with the U. S. Army Corps of Engineers' Environmental Operating Principles.

The following is a list of applicable environmental laws and regulations that were considered in the planning of this project and the status of compliance with each:

National Environmental Policy Act - This environmental assessment has been prepared in accordance with Council on Environmental Quality regulations for implementing NEPA. The environmental and social consequences of the recommended plan have been analyzed in accordance with the Act and presented in the assessment.

Fish And Wildlife Coordination Act Of 1958, As Amended - The proposed plan is being coordinated with the U. S. Fish and Wildlife Service and Texas Parks & Wildlife Department. Information provided by USFWS and TPWD on fish and wildlife resources has been considered in the development of the project. The U. S. Fish and Wildlife Service prepared a Planning Aid Letter, which the District considered in formulating plans for avoiding and minimizing impacts to fish and wildlife.

Endangered Species Act of 1973, as amended - The District is coordinating this project with the U. S. Fish and Wildlife Service and National Marine Fisheries Service regarding threatened, endangered or proposed species and their critical habitats in the project area. The District prepared a Biological Assessment of potential impacts to federally listed species and provided it to the USFWS and NMFS for review. The BA concluded that the proposed project would not result in any significant adverse impacts to federally listed threatened or endangered species (Sections 3.5 and 4.5). The BA and correspondence with the USFWS and NMFS regarding the Biological Assessment will be included in Appendix E of the final EA.

Magnuson-Stevens Fishery Conservation and Management Act - Congress enacted amendments to the Magnuson-Stevens Fishery Conservation and Management Act in 1996 that established procedures for identifying essential fish habitat and required interagency coordination to further the conservation of federally managed fisheries. Rules published by the National Marine Fisheries Service (50 CFR 600.805 through 600.930) specify that any federal agency that authorizes, funds or undertakes, or proposes to authorize, fund or undertake an activity that could adversely affect EFH be subject to the consultation provisions of the act. No significant impacts to living marine resources or EFH would occur as a result of the project (Sections 3.4 and 4.4). Submittal of this draft EA will continue coordination with NMFS and NMFS will provide comments on EFH impacts for inclusion in the final EA.

Clean Water Act of 1977 - The District evaluated the proposed action pursuant to Section 404 of the Clean Water Act and project impacts are summarized in a Section 404(b)(1) analysis, which is included in Appendix C. A Joint Public Notice has been issued with the Texas Commission on Environmental Quality (Appendix A). The Commission is the state agency for issuing state water quality certifications pursuant to Section 401 of the Clean Water Act.

Marine Protection, Research, and Sanctuaries Act of 1972 - This Act requires a determination that dredged material disposal in the ocean would not unreasonably degrade or endanger human health, welfare or amenities, or the marine environment, ecological system, or economic potentialities (shellfish beds, fisheries, or recreational areas). During construction and maintenance activities, the disposal of dredged material into the surf zone for beach nourishment and littoral sand budget maintenance would not result in unreasonable degradation of the marine environment or endangerment of human health, welfare or amenities.

Marine Mammal Protection Act of 1972 - Under the Marine Mammal Protection Act, all species of marine mammals are protected. The Act prohibits the "take" of marine mammals, which is defined as harassing, hunting, capturing, killing or collecting, or attempting to harass,

hunt, capture, kill or collect. The proposed project will not result in a take of any marine mammal species.

National Historic Preservation Act of 1966, as amended – Compliance with the National Historic Preservation Act of 1966, as amended, requires identification of all properties in the project area listed on, or eligible for listing on, the National Register of Historic Places. For any adversely affected properties, mitigation measures must be developed in coordination with the SHPO and the Advisory Council on Historic Preservation. The District coordinated the proposed project with the Texas State Historic Preservation Officer. The State concurred that the project would have no effect on historic properties and that the project may proceed. (Sections 3.6, 4.6 and Appendix F).

Coastal Barrier Resources Act of 1982 – This Act established the John H. Chaffee Coastal Barrier Resources System (CBRS) to minimize the loss of human life, wasteful federal expenditures, and damage to fish, wildlife, and other natural resources associated with coastal barriers. Coastal barriers are bay barriers, barrier islands, and other geological features composed of sediment that protect landward aquatic habitats from direct wind and waves. As part of the program, the federal government discourages development on designated undeveloped coastal barriers by restricting certain federal financial assistance, including USACE development projects. The District believes that the proposed project is an exempt activity because it consists of maintenance of an existing federal navigation channel. Federal funds may be spent in CBRS areas for exempt activities after consultation with the USFWS, which presently is being conducted.

Coastal Zone Management Act of 1972 - This Act requires that all land-use changes in the project area be conducted in accordance with approved state coastal zone management programs. Any project that is located in, or which may affect land and water resources in the Texas coastal zone and that requires a federal license or permit, or is a direct activity of a federal agency, or is federally funded must be reviewed for consistency with the Texas Coastal Management Program (TCMP). The proposed action is within the coastal boundary defined by the TCMP.

The District reviewed the project for consistency with the goals and policies of the TCMP. Coastal Natural Resource Areas in the project area were identified and evaluated for potential impacts from project activities. The District has determined that the proposed project would not adversely impact these resource areas and that the proposed activities are consistent with the goals and policies of the Texas Coastal Management Program to the maximum extent practicable. The District's consistency review is included in Appendix D. The Coastal Coordination Council letter of response will be included in Appendix D of the final EA.

Clean Air Act of 1977 - The Environmental Protection Agency established nationwide air quality standards to protect public health and welfare. The State of Texas has adopted the National Ambient Air Quality Standards as the state's air quality criteria. The project is located in Matagorda County which has attainment status. Emissions from construction activities are not considered regionally significant (Sections 3.7 and 4.7).

Executive Order 11990, Protection of Wetlands - Executive Order 11990 requires federal agencies to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in executing federal projects. The

proposed action has been analyzed for compliance with Executive Order 11990. The project footprint area occurs in beach and shallow Gulf water habitat. The project area does not contain wetlands, nor would wetlands outside the project area be affected by the project. Therefore, the proposed project is in compliance with this Order (Sections 3.2 and 4.2).

Executive Order 11988, Floodplain Management - This Order directs Federal agencies to evaluate the potential effects of proposed actions in floodplains. The proposed project is situated in a floodplain. In accordance with this Order, a public notice (Appendix A) has been circulated to acquaint the public and all interested Federal, State and local agencies and organizations with details of the proposed action and provide opportunity for public hearing. The recommended plan would not induce increased flooding in developed areas and would not contribute to increased future flood damages.

Council on Environmental Quality Memorandum dated August 11, 1980, Prime or Unique Farmlands - Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops, and is also available for these uses. Unique farmland is land other than prime farmland that is used for the production of specific high value food and fiber crops. The proposed project would not impact any lands considered prime or unique farmlands.

Executive Order 12898, Environmental Justice - This Order directs Federal agencies to achieve environmental justice to the greatest extent practicable and permitted by law, and consistent with the principles set forth in the report on the National Performance Review. Agencies are required to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The proposed project would not have a disproportionate adverse impact on minority or low-income population groups within the project area (Sections 3.11 and 4.11).

## **9.0 CONCLUSIONS**

The following conclusions summarize the findings of the EA, as detailed in the environmental analyses in Section 4.0:

- Aquatic habitat would be temporarily affected during the construction activities, but these impacts do not represent significant impacts to the environment. Benefits to the aquatic habitat would accrue through hard-substrate habitat creation.
- No wetlands or seagrass habitat would be impacted by the proposed project
- No terrestrial habitats would be affected by this proposed action, except that the new jetty would provide erosion protection to the shoreline north of the west jetty.
- Fish and invertebrates may be affected locally in the project area, but this does not represent significant or adverse impacts to the environment. Benefits would accrue through habitat creation and erosion control.
- Threatened or endangered species would not likely be adversely affected by the proposed project.

- Historic properties or recorded archeological sites would not be affected by the proposed action.
- Emissions from construction activities would not be locally or regionally significant.
- Implementation of the proposed action would not result in any significant or permanent noise impacts.
- There would be no long-term impacts to water quality from the proposed activities.
- There would be no hazardous and/or toxic waste impacts from the proposed action.
- There would be minor, temporary impacts to localized aesthetics during the construction period, but no long-term impacts. Navigation would benefit from a lower channel shoaling rate, resulting in a safer and more reliable channel condition.
- No significant or adverse impacts to environmental resources are expected to occur as a result of implementation of the proposed project. No adverse cumulative impacts to environmental resources are expected as a result of project implementation
- The U.S. Army Corps of Engineers finds that the proposed action is in compliance with the Texas Coastal Management Program.

The proposed project would not result in significant impacts to the human environment. Therefore, the preparation of an Environmental Impact Statement is not required.

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## **APPENDIX A**

### **PUBLIC NOTICE AND COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT**





**DEPARTMENT OF THE ARMY**  
**GALVESTON DISTRICT, CORPS OF ENGINEERS**  
**P. O. BOX 1229**  
**GALVESTON, TEXAS 77553-1229**

Environmental Section

**JOINT PUBLIC NOTICE**  
**U.S. ARMY CORPS OF ENGINEERS, GALVESTON DISTRICT**  
**AND**  
**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY**

**PUBLIC NOTICE NO. MOCR-08-01**

**CONSTRUCTION OF A NEW EAST JETTY**  
**MOUTH OF THE COLORADO RIVER, TEXAS**

**PURPOSE**

This public notice is to inform interested parties that the US Army Corps of Engineers has prepared a draft Environmental Assessment (EA) in accordance with the National Environmental Protection Act (NEPA), Public Law 91-190, and regulations for implementing the Procedural Provisions of the NEPA, 40 Code of Federal Regulations 1500-1508. This notice is being distributed to interested State, Federal, and local agencies, private organizations, news media, and individuals in order to assist in collecting facts and recommendations concerning the proposed construction of a new east jetty at the Mouth of the Colorado River Project, Texas. The purpose of the new east jetty would be to reduce shoaling in the Mouth of the Colorado River Entrance Channel and reduce erosion of a portion of the west bank of the Colorado River Navigation Channel.

**PROJECT LOCATION**

The proposed project site is located in Matagorda County, Texas, about 6.5 miles south of the town of Matagorda. The site is on the Gulf of Mexico shoreline at the entrance of the Colorado River Navigation Channel.

**PROJECT DESCRIPTION**

The Mouth of the Colorado River Project was addressed in the Final Environmental Statement (FES) for Mouth of Colorado River, Texas, which was completed and filed with the U.S. Environmental Protection Agency (EPA) in December 1977. The existing project consists of an entrance channel, navigation channel, jetty system, sediment impoundment basin, beach dredged material placement area, and a sediment training structure. The sediment training structure was added to the project in 2003 and was addressed in an EA dated April 2003.

The existing east jetty has a weir section that was designed to allow the sand transported in the longshore current to settle in the impoundment basin, rather than in the navigation channel.

Periodic maintenance dredging would then remove this sediment and pump it beyond the west jetty to a beach placement area, thereby restoring this material to the littoral sediment budget. The expected frequency of maintenance dredging of the impoundment basin and navigation channel was estimated to be two years. The work described in this public notice identifies additional measures that would enhance project purposes.

## **NEED FOR WORK**

The design and construction of the existing jetties and impoundment basin system were based on studies performed prior to construction of an upstream diversion dam, which diverted the flows of the Colorado River into West Matagorda Bay. The diversion eliminated flows that were anticipated during the design of the jetties. Also, the rate, volume, and pattern of littoral drift were underestimated. The construction of the sediment training structure in 2003 did not result in a long-term reduction of the shoaling rate in the channel. The structure quickly was buried and overtopped by wind-blown sand and much of the sand transported by wind continues to bypass the impoundment basin and settle in the navigation channel. The formation of hazardous shoals in the channel has been a continuous and increasing problem up to the present time, resulting in the need for more frequent dredging as sand fills in the entrance channel.

The proposed action is to construct a new east jetty. The proposed structure would reduce the rate of shoaling in the entrance channel, providing for more reliable and safer navigation and reducing the costs of maintenance on the channel. Additionally, it would reduce erosion that is occurring on the western shoreline of the Colorado River Navigation Channel.

## **PROPOSED NEW EAST JETTY**

The proposed new jetty would be approximately 2,750 feet long, in three segments. It would be constructed of varied rock sizes. The landward segment, roughly 550 feet long, would be constructed on top of the existing sediment training structure. The middle segment, about 700 feet long, would angle to the southwest toward the west jetty. This segment would be constructed on land. The seaward segment, about 1,500 feet long, would be constructed parallel to the west jetty, with a portion on land and the remainder in the water. The crown (top) width of the jetty would be 16 feet. The existing east jetty would remain in place. The authorized entrance channel, which presently has completely filled in and has effectively migrated to the west, would be reconstructed between the new east jetty and the existing west jetty. The entrance channel width would be reduced from its presently authorized 200-foot width to 150 feet.

There is no work by others covered by this notice. The Department of the Army permit program regulates non-Federal construction activities in navigable waters.

## **COMPLIANCE WITH LAWS AND REGULATIONS**

This proposed plan is being coordinated with the U.S. Fish and Wildlife Service (USFWS), National Marine Fisheries Service (NMFS), and other Federal, State, and local agencies. Informal consultation procedures also have begun with the USFWS and NMFS in compliance with the

Endangered Species Act, as amended. Our initial determination is that the proposed action will not have any adverse impacts on threatened or endangered species.

This notice initiates Essential Fish Habitat consultation requirements of the Magnuson-Stevens Fishery Conservation and Management Act. Our initial determination is that the proposed action will not have a substantial adverse impact on Essential Fish Habitat or federally-managed fisheries in the Gulf of Mexico. Our final determination relative to project impacts and the need for mitigation measures is subject to review by and coordination with the NMFS.

The proposed dredged material placement plan will also be evaluated with regard to the requirements of Section 404(b)(1) of the Clean Water Act. Water quality certification will be requested from the Texas Commission On Environmental Quality (TCEQ).

It is also our preliminary determination that the proposed action is consistent with the Texas Coastal Management Program (TCMP) to the maximum extent practicable.

The proposed activity has been coordinated with the State Historic Preservation Officer (SHPO). Our determination is that the proposed action will not have any adverse impacts on historic or cultural resources. The SHPO has concurred with this determination.

The following is a list of Federal, State, and local agencies with which these activities are being coordinated:

- U.S. Environmental Protection Agency, Region 6
- U.S. Department of Commerce
- U.S. Department of the Interior
- Eighth Coast Guard District
- Budget and Planning Office, Office of the Governor of Texas
- Texas Historical Commission
- Texas Parks and Wildlife Department
- Texas Commission on Environmental Quality
- Texas General Land Office
- Coastal Coordination Council
- The Texas Office of State-Federal Relations
- Texas Department of Transportation
- Texas Water Development Board
- Commissioners' Court of Matagorda County
- Port of Bay City Authority
- Lower Colorado River Authority

#### **STATE WATER QUALITY CERTIFICATION**

TCEQ certification is required. The TCEQ is reviewing the proposed project under Section 401 of the Clean Water Act and in accordance with Title 31, Texas Administrative Code Section 279.1-13 to determine if the work would comply with State water quality standards. By virtue of an agreement between the U.S. Army Corps of Engineers and the TCEQ, this public notice is

also issued for the purpose of advising all known interested persons that there is pending before the TCEQ a decision on water quality certification under such act. Any comments concerning this work may be submitted to the Texas Commission on Environmental Quality, Attention: 401 Coordinator, MC-150, P.O. Box 13087, Capitol Station, Austin, Texas 78711-13087. The public comment period extends 30 days from the date of publication of this notice. A copy of the public notice with a description of work is made available for review in the TCEQ's Austin office.

The TCEQ may conduct a public meeting to consider all comments concerning water quality if requested in writing. A request for a public meeting must contain the following information: the name, mailing address, and telephone number of the person making the request; a brief description of the interest of the requester, or of persons represented by the requester; and a brief description of how the project would adversely affect such interest.

### **EVALUATION FACTORS**

The decision whether to proceed with the proposed action will be based on an evaluation of the probable impact of the proposed activity on the public interest. That decision will reflect the national concern for both protection and utilization of important resources as well as public and environmental safety and economic concerns.

### **ENVIRONMENTAL DOCUMENTATION**

The work described in this notice represents a change to the existing project. A preliminary review of this proposed plan indicates that an Environmental Impact Statement (EIS) is not required. This preliminary determination of EIS requirement will be changed if information brought forth in the coordination process is of a significant nature. Based on this determination, a draft Environmental Assessment (EA) has been prepared. The EA assesses potential impacts to the human and natural environment that would result from the proposed project. Single copies of the EA are available by written request to the address below. The document is also available online at: <http://www.swg.usace.army.mil>.

### **PUBLIC COMMENT**

Persons desiring to express their views or provide information to be considered in evaluating the impact of this work and the future maintenance operations are requested to mail their comments within 30 days of the date of this notice to:

District Engineer  
U.S. Army Engineer District, Galveston  
ATTN: CESWG-PE-PR  
P.O. Box 1229  
Galveston, Texas 77553-1229

The comments should make specific reference to Public Notice No. MOCR-08-01.

Any person who has an interest that may be affected by this action may request a public hearing. The request must be submitted in writing within 30 days of the date of this notice and must clearly set forth the interest that may be affected and the manner in which the interest may be affected by this activity.

Any questions concerning the proposed action may be directed to Mr. Steve Ireland at (409) 766-3131.

Dolan Dunn  
Chief, Planning, Environmental  
and Regulatory Division  
Galveston District

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**[COMMENTS WILL BE INCLUDED IN FINAL EA]**

## **APPENDIX B**

### **REPONSES TO COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT**

[RESPONSES WILL BE INCLUDED IN FINAL EA]



## **APPENDIX C**

### **CLEAN WATER ACT SECTION 404(B)(1) EVALUATION AND WATER & SEDIMENT QUALITY DATA**

## EVALUATION OF SECTION 404(b)(1) GUIDELINES (SHORT FORM)

PROPOSED PROJECT: MOUTH OF THE COLORADO RIVER – CONSTRUCTION OF A NEW EAST JETTY

	Yes	No*
<b>1. Review of Compliance (230.10(a)-(d))</b>		
A review of the proposed project indicates that:		
a. The placement represents the least environmentally damaging practicable alternative and, if in a special aquatic site, the activity associated with the placement must have direct access or proximity to, or be located in the aquatic ecosystem, to fulfill its basic purpose (if no, see section 2 and information gathered for EA alternative).	X	
b. The activity does not appear to:		
1) Violate applicable state water quality standards or effluent standards prohibited under Section 307 of the Clean Water Act;	X	
2) Jeopardize the existence of Federally listed endangered or threatened species or their habitat; and	X	
3) Violate requirements of any Federally designated marine sanctuary (if no, see section 2b and check responses from resource and water quality certifying agencies).	X	
c. The activity will not cause or contribute to significant degradation of waters of the U.S. including adverse effects on human health, life stages of organisms dependent on the aquatic ecosystem, ecosystem diversity, productivity and stability, and recreational, aesthetic, an economic values (if no, see values, Section 2)	X	
d. Appropriate and practicable steps have been taken to minimize potential adverse impacts of the discharge on the aquatic ecosystem (if no, see Section 5)	X	

	Not Applicable	Not Significant	Significant*
<b>2. Technical Evaluation Factors (Subparts C-F)</b> (where a 'Significant' category is checked, add explanation below.)			
a. Physical and Chemical Characteristics of the Aquatic Ecosystem (Subpart C)			
1) Substrate impacts		X	
2) Suspended particulates/turbidity impacts		X	
3) Water column impacts	X		
4) Alteration of current patterns and water circulation		X	
5) Alteration of normal water fluctuation/hydroperiod	X		
6) Alteration of salinity gradients	X		
b. Biological Characteristics of the Aquatic Ecosystem (Subpart D)			
1) Effect on threatened/endangered species and their habitat		X	
2) Effect on the aquatic food web		X	
3) Effect on other wildlife (mammals, birds, reptiles and amphibians)		X	

	Not Applicable	Not Significant	Significant*
<b>2. Technical Evaluation Factors (Subparts C-F)</b> (where a 'Significant' category is checked, add explanation below.)			
c. Special Aquatic Sites (Subpart E)			
1) Sanctuaries and refuges	X		
2) Wetlands	X		
3) Mud flats	X		
4) Vegetated shallows	X		
5) Coral reefs	X		
6) Riffle and pool complexes	X		
d. Human Use Characteristics (Subpart F)			
1) Effects on municipal and private water supplies	X		
2) Recreational and Commercial fisheries impacts		X	
3) Effects on water-related recreation		X	
4) Aesthetic impacts		X	
5) Effects on parks, national and historical monuments, national seashores, wilderness areas, research sites, and similar preserves		X	

	Yes
<b>3. Evaluation of Dredged or Fill Material (Subpart G)</b>	
a. The following information has been considered in evaluating the biological availability of possible contaminants in dredged or fill material (check only those appropriate)	
1) Physical characteristics	X
2) Hydrography in relation to known or anticipated sources of contaminants	N/A
3) Results from previous testing of the material or similar material in the vicinity of the project	X
4) Known, significant sources of persistent pesticides from land runoff or percolation	N/A
5) Spill records for petroleum products or designated (Section 311 of Clean Water Act) hazardous substances	X
6) Other public records of significant introduction of contaminants from industries, municipalities or other sources	X
7) Known existence of substantial material deposits of substances which could be released in harmful quantities to the aquatic environment by man-induced discharge activities	X
8) The material to be placed in the water consists of sand and rock. The material is considered to be exempt from contaminant testing.	X

**List appropriate references:**

- 1) Unpublished Corps of Engineer data, Mouth of the Colorado River – Channel and Impoundment Basin, 1994.
- 2) Unpublished Corps of Engineer data, Mouth of the Colorado River – Channel and Impoundment Basin, 1995.
- 3) National Response Center – Public Report URL <http://www.nrc.uscg.mil/>

	Yes	No
b. An evaluation of the appropriate information in 3a above indicates that there is reason to believe the proposed dredge or fill material is not a carrier of contaminants, or that levels of contaminants are substantively similar at extraction and placement sites and not likely to degrade the placement sites, or the material meets the testing exclusion criteria.	X	

	Yes
<b>4. Placement Site Delineation (230.11(f))</b>	
a. The following factors, as appropriate, have been considered in evaluating the placement site:	
1) Depth of water at placement site	X
2) Current velocity, direction, and variability at placement site	X
3) Degree of turbulence	X
4) Water column stratification	N/A
5) Discharge vessel speed and direction	N/A
6) Rate of discharge	N/A
7) Fill material characteristics (constituents, amount, and type of material, settling velocities)	X
8) Number of discharges per unit of time	X
9) Other factors affecting rates and patterns of mixing (specify)	

**List appropriate references:**

1) not applicable

	Yes	No
b. An evaluation of the appropriate factors in 4a above indicates that the placement site and/or size of mixing zone are acceptable.	X	

	Yes	No
<b>5. Actions to Minimize Adverse Effects (Subpart H)</b>		
All appropriate and practicable steps have been taken, through application of recommendations of 230.70-230.77 to ensure minimal adverse effects of the proposed discharge.	X	

**List actions taken:**

- 1) The construction fill material will consist of clean rock material. This material will be deposited at precise locations using mechanical methods, such as dragline or clamshell bucket.
- 2) The construction material will be a hard structure that will become habitat to aquatic organisms.
- 3) Dredged material will consist primarily of natural sand deposited by coastal littoral drift, with finer materials originating in the navigation channel and GIWW. Dredged material will be discharged down drift of project structures to maintain sand budget for littoral drift processes.

	Yes	No*
<b>6. Factual Determination (230.11)</b>		
A review of appropriate information as identified in items 2-5 above indicates that there is minimal potential for short- or long-term environmental effects of the proposed discharge as related to:		

	Yes	No*
a. Physical substrate at the placement site (review Sections 2a. 3, 4, and 5 above)	X	
b. Water circulation, fluctuation and salinity (review Sections 2a. 3, 4, and 5)	X	
c. Suspended particulates/turbidity (review Sections 2a. 3, 4, and 5)	X	
d. Contaminant availability (review Sections 2a. 3, and 4)	X	
e. Aquatic ecosystem structure and function (review Sections 2b and c, 3, and 5)	X	
f. Placement site (review Sections 2, 4, and 5)	X	
g. Cumulative impacts on the aquatic ecosystem	X	
h. Secondary impacts on the aquatic ecosystem	X	

### 7. Evaluation Responsibility


a. This evaluation was prepared by: **Steve Ireland**  
Position: **Physical Scientist**

### 8. Findings

a. The proposed placement site for discharge of dredged or fill material complies with the Section 404(b)(1) Guidelines.	X
b. The proposed placement site for discharge of dredged or fill material complies with the Section 404(b)(1) Guidelines with the inclusion of the following conditions:	

#### List of conditions:

1) not applicable

c. The proposed placement site for discharge of dredged or fill material does not comply with the Section 404(b)(1) Guidelines for the following reason(s):	
1) There is a less damaging practicable alternative	
2) The proposed discharge will result in significant degradation of the aquatic ecosystem	
3) The proposed discharge does not include all practicable and appropriate measures to minimize potential harm to the aquatic ecosystem	
<u>4/28/08</u> Date	 CAROLYN MURPHY Chief, Environmental Branch

#### NOTES:

- A negative, significant, or unknown response indicates that the permit application may not be in compliance with the Section 404(b)(1) Guidelines.

Negative responses to three or more of the compliance criteria at the preliminary stage indicate that the proposed projects may not be evaluated using this "short form" procedure. Care should be used in assessing pertinent portions of the technical information of items 2a-e before completing the final review of compliance.

Negative response to one of the compliance criteria at the final stage indicates that the proposed project does not comply with the Guidelines. If the economics of navigation and anchorage of Section 404(b)(2) are to be evaluated in the decision-making process, the "short form" evaluation process is inappropriate.

TABLE 1

CONCENTRATIONS OF DETECTED COMPOUNDS (ug/L)  
WATER  
MOUTH OF THE COLORADO RIVER

Date Sampled: March 6, 2003												
WQS**												
Parameter	Acute Chronic		Detection Limit	32		32 Dup	33	GIF-CM-03-				
				32	36			34	35	36	37	
Arsenic	149	78	1.00	2.41	2.98	3.11	3.89	4.63	3.49	4.63	4.63	
Copper	13.5	3.60	1.00	BDL	1.27	1.49	2.10	2.40	1.37	2.47	2.47	
Nickel	118	13.1	1.00	2.30	2.24	2.49	3.15	3.03	2.78	3.12	3.12	
Selenium	564	136.0	2.00	5.80	2.98	5.58	6.81	4.63	7.99	7.74	7.74	
Zinc	92.7	84.2	1.00	4.95	5.72	4.82	8.90	7.43	7.17	8.15	8.15	
Ammonia*	N/A	N/A	0.03	0.25	0.15	0.10	BDL	0.10	0.12	0.37	0.37	
TOC*	N/A	N/A	0.10	1.60	1.50	1.80	1.30	1.50	1.40	1.50	1.50	

Dup = Duplicate Sample

BDL = Below Detection Limits

\* mg/L

\*\* For Saltwater

CONCENTRATIONS OF DETECTED COMPOUNDS (ug/L)  
ELUTRIATE  
MOUTH OF THE COLORADO RIVER

Date Sampled: March 6, 2003													
WQS**													
Parameter	Acute		Chronic	Detection Limit		GIF-CM-03-					MOC-STS-03-		
	32	32		32	32	33	34	35	36	37	01	02	
				Dup									
Arsenic	149	78		1.00	3.14	3.50	3.32	4.36	4.18	4.61	4.58	3.79	3.87
Copper	13.5	3.60		1.00	1.48	1.78	2.44	1.78	1.49	1.22	1.85	1.75	1.73
Nickel	118	13.1		1.00	2.29	4.55	2.81	3.49	3.14	3.72	3.40	3.58	3.66
Selenium	564	136.0		2.00	6.49	7.25	6.31	7.62	8.80	9.53	9.85	8.01	6.81
Zinc	92.7	84.2		1.00	4.24	6.05	4.52	6.23	6.72	6.64	8.07	11.2	7.80
Ammonia*	N/A	N/A		0.03	BDL	0.42	0.33	0.27	0.28	0.27	0.31	0.18	0.12
TOC*	N/A	N/A		0.10	1.90	1.70	1.90	1.60	1.60	1.70	1.50	1.70	1.70

**Dup = Duplicate Sample**

BDL = Below Detection Limits

\* mg/L

**\*\* For Saltwater**

TABLE 3

**CONCENTRATIONS OF DETECTED COMPOUNDS (dry weight)  
SEDIMENT  
MOUTH OF THE COLORADO RIVER**

Date Sampled: March 6, 2003

Parameter	Units	Detection Limit	GIF-CM-03-					MOC-STS-03-		
			32	32 Dup	33	34	35	36	37	01 02
Arsenic	mg/kg	0.30	2.52	2.08	1.61	5.58	2.86	1.79	2.79	1.38 1.41
Chromium, Total	mg/kg	1.00	3.32	BDL	BDL	BDL	3.71	2.02	4.08	BDL BDL
Chromium III	mg/kg	1.00	3.32	BDL	BDL	BDL	3.71	2.02	4.08	BDL BDL
Copper	mg/kg	1.00	1.94	1.57	BDL	5.38	7.43	BDL	2.20	BDL BDL
Lead	mg/kg	0.30	3.99	3.48	1.72	3.69	4.37	2.32	4.79	BDL BDL
Nickel	mg/kg	0.50	3.38	2.74	1.16	4.47	10.4	2.22	4.33	BDL BDL
Selenium	mg/kg	0.50	BDL	BDL	BDL	9.75	BDL	BDL	BDL	BDL BDL
Zinc	mg/kg	2.00	13.3	10.3	6.05	7.97	14.3	8.92	15.8	2.95 3.48
Ammonia	mg/kg	0.10	10.60	3.37	1.90	7.78	3.15	BDL	9.61	3.23 1.02
TOC	mg/kg	0.1	1,070	884	1,020	896	1,150	605	1,000	525 521
Percent Solids	%	0.10	77.2	76.9	77.6	77.9	75.5	79.5	75.5	79.7 80.7
Gravel	%	N/A	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3 1.3
Sand	%	N/A	76.5	83.8	100.0	89.9	75.5	93.6	77.7	99.5 97.6
Silt	%	N/A	14.6	8.8	0.0	5.7	16.9	0.7	17.5	0.2 1.1
Clay	%	N/A	8.9	7.6	0.0	4.4	7.6	5.7	4.8	0.0 0.0
D50	mm	N/A	0.137	0.150	0.210	0.143	0.128	0.138	0.116	0.232 0.232

Dup = Duplicate Sample  
BDL = Below Detection Limit



## **APPENDIX D**

### **COMPLIANCE WITH THE GOALS AND POLICIES OF THE TEXAS COASTAL MANAGEMENT PROGRAM**

## CONSISTENCY WITH THE TEXAS COASTAL MANAGEMENT PROGRAM

### CONSTRUCTION OF A NEW EAST JETTY MOUTH OF THE COLORADO RIVER, TEXAS

#### INTRODUCTION

The State of Texas submitted the Texas Coastal Management Program (TCMP) to the National Oceanic and Atmospheric Administration for review pursuant to Section 306 of the Federal Coastal Zone Management Act of 1972, as amended (16 U.S.C. 1451 *et seq.*). The TCMP was approved by the Office of Ocean and Coastal Resource Management in 1996. Federal approval of the TCMP requires that federal actions occurring within the TCMP boundary be consistent, to the maximum extent practicable, with the goals and policies of the TCMP. To show compliance, Federal agencies responsible for these actions must prepare a consistency determination and submit it to the state for review.

This consistency determination for the proposed project is prepared in accordance with the "Texas Coastal Management Program Final Environmental Impact Statement," dated August 1996 (U.S. Department of Commerce, 1996). Details of project construction, as well as environmental impacts, are presented in previous sections of this EA and will be referenced in this determination. It is the intent of the Galveston District of the U.S. Army Corps of Engineers that all USACE projects be consistent to the maximum extent practicable with the goals and policies of the Texas Coastal Management Program.

#### IMPACT ON COASTAL NATURAL RESOURCES AREAS

A description of the project, an environmental description of the site, environmental impacts resulting from construction of the project, and results of a cultural resource investigation of the project area are presented in Sections 1.0, 3.0, and 4.0. Several of the Coastal Natural Resources Areas identified in the state program are found in the vicinity of the proposed project. Following are Coastal Natural Resource Areas that are associated with valuable coastal resources or vulnerable or unique coastal areas. Anticipated impacts to these resources from the proposed project and measures to minimize or avoid potential impacts are summarized for each of these resources.

- **Coastal Barriers:** The proposed project is located on Matagorda Peninsula, which is the coastal barrier separating the Gulf of Mexico from the Texas mainland in the proposed project area. The project would provide measures for sand bypassing to help minimize interruption of the littoral sediment budget that maintains coastal barriers. It would also restore and provide erosion protection to the shoreline on the west bank of the entrance channel landward of the west jetty. The project would not jeopardize the integrity of this coastal barrier or result in adverse impacts.
- **Coastal Historic Areas:** No historic properties have been identified in the project area.
- **Coastal Preserves:** There are no state coastal preserves in the project area.

- **Coastal Shore Areas:** This resource area is a strip of land from the high-water mark on coastal beaches to 100 feet inland. The project location is the surf zone and lower beach area. No adverse impacts to these resources are anticipated.
- **Coastal Wetlands:** There are no coastal wetlands located in the immediate project area. Consideration of wetlands is described in Sections 3.2 and 4.2. Adverse impacts to wetlands are not anticipated from this project.
- **Critical Dune Areas:** There are no significant sand dunes located in the project area. Some small, ephemeral dunes may be present; however, the proposed work would be conducted in the beach and surf zones. Vehicular access to the beach through dune areas already exists. No new routes for vehicles or equipment would be used. No adverse impacts to sand dunes are expected.
- **Critical Erosion Areas:** These areas are designated by the land commissioner. There are no such areas in the project area.
- **Gulf Beaches:** The project is located on Gulf beach. The project would provide measures for sand bypassing to maintain the littoral sediment budget that sustains beaches down-drift of the project area. The proposed project would not result in adverse impacts to the Gulf beach.
- **Hard Substrate Reefs:** There are no naturally occurring rock outcrops or reefs occurring in or near the project area.
- **Oyster Reefs:** There are no oyster reefs occurring within or near the project area.
- **Special Hazard Areas:** These are low-lying, flood-prone areas as shown on federal Flood Hazard Boundary Maps or Flood Insurance Rate Maps. The project area is located in the lower beach and surf zone and is in Zone V10 on the Flood Insurance Rate Map for this area. Therefore, the area is considered a special hazard area. However, the proposed project would not induce increased flooding in developed areas and would not contribute to increased future flood damages in the region.
- **Submerged Lands:** Much of the project site is located within the surf zone, which is submerged land. A portion of the proposed jetty would transform submerged land into hard-substrate habitat and the reconstruction of the entrance channel would restore an area of accumulated sand to submerged land. The proposed project benefits offset any impacts. The impacts are described in Section 4.0. Adverse impacts to submerged lands are not anticipated.
- **Submerged Aquatic Vegetation:** There are no seagrasses or other submerged aquatic vegetation growing in or near the project area.
- **Tidal Sand or Mud Flats:** There are no areas of tidal sand or mud flats in the project area.
- **Waters of the Open Gulf of Mexico:** The project is located within the Gulf of Mexico, but would not result in significant adverse impacts to this resource.

- **Waters Under Tidal Influence:** The project site is located in open water that is influenced by tides. Construction activities at the project site would temporarily release suspended solids in the area. These impacts would cease once construction is completed. This impact is described in the Section 4.0 and judged to be minor and of short duration.

## COMPLIANCE WITH GOALS AND POLICIES

The following goals and policies of the TCMP were reviewed for compliance.

- Section 501.23: Development in Critical Areas
- Section 501.26: Construction in The Beach/Dune System
- Section 501.15: Policy for Major Actions

### Compliance with Section 501.23: Development in Critical Areas

Several critical areas, as defined by the TCMP, are located within the project site. The proposed project would not result in adverse impacts to any of these critical areas. The project would restore an existing federal channel and would not promote new development in critical areas. Additionally, secondary benefits of erosion control are expected to be realized. Sections 1.0, 3.0, and 4.0 of the EA demonstrate that the project complies with Section 501.23.

### Compliance with Section 501.26: Construction in The Beach/Dune System

The location of the proposed project was selected to intercept sand transported by the littoral currents to reduce shoaling in the Mouth of the Colorado River Channel. In order to accomplish this, the project must be constructed in the beach/dune system. The project would have no direct impacts on the dune system, but would provide benefits to the beach system. Sand accumulated in the impoundment basin would be pumped to beach beyond the west jetty, returning this material to the littoral sediment budget. Sections 1.0, 3.0, 4.0 of the EA demonstrate that the project complies with applicable subparts of 501.26.

#### Compliance with Section 501.15: Policy for Major Actions

In its Environmental Assessment, USACE determined that the proposed project will not result in significant impacts to the environment and that an Environmental Impact Statement is not necessary. Therefore, the proposed action is not a major federal action as defined in the TCMP and is in compliance with Section 501.15.

#### CONSISTENCY DETERMINATION

The project has been reviewed for consistency with the goals and policies of the TCMP. Coastal Natural Resource Areas in the project area are identified and evaluated for potential impacts from project activities. The District has determined that the proposed project would not cause any significant adverse impacts to these resource areas and that the proposed activities are consistent with the goals and policies of the Texas Coastal Management Program to the maximum extent practicable.

## **APPENDIX E**

### **ENDANGERED SPECIES COORDINATION AND BIOLOGICAL ASSESSMENT**



**DEPARTMENT OF THE ARMY**  
GALVESTON DISTRICT, CORPS OF ENGINEERS  
P. O. BOX 1229  
GALVESTON, TEXAS 77553-1229

August 8, 2007

SKP  
IRELAND/3131  
PE-PR  
8/8/07  
MURPHY  
PE-PR

Environmental Section

David M. Bernhart  
Assistant RA for Protected Resources  
Southeast Regional Office  
National Marine Fisheries Service  
263 13th Avenue South  
St. Petersburg, FL 33701

Dear Mr. Bernhart:

This letter is in regard to the proposed construction of a new east jetty at the Mouth of the Colorado River Project, Matagorda County, Texas. This structure, depicted on the enclosed figure, is expected to reduce frequent shoaling at the entrance channel and reduce the cost of maintenance dredging.

To facilitate compliance with the requirements of Section 7, subsection (a)(2) of the Endangered Species Act Amendments of 1978, a list of any species which is listed or proposed to be listed, that may be present in the area of the proposed action is requested.

If you or your staff have any questions regarding this activity, please contact Steve Ireland at (409) 766-3131.

Sincerely,

Carolyn Murphy  
Chief, Environmental Section

Enclosure

CF w/ Enclosure

Mr. Rusty Swafford  
National Marine Fisheries Service  
Habitat Conservation Division  
4700 Avenue U  
Galveston, Texas 77551



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
GALVESTON DISTRICT, CORPS OF ENGINEERS  
P. O. BOX 1229  
GALVESTON, TEXAS 77553-1229

August 8, 2007

SKJ  
IRELAND/3131  
PE-PR  
8/8/07

MURPHY  
PE-PR  
8/8

Environmental Section

Mr. Steve Parris  
Field Supervisor  
U.S. Fish and Wildlife Service  
17629 El Camino Real, Suite 211  
Houston, Texas 77058

Dear Mr. Parris:

This letter is in regard to the proposed construction of a new east jetty at the Mouth of the Colorado River Project, Matagorda County, Texas. This structure, depicted on the enclosed figure, is expected to reduce frequent shoaling at the entrance channel and reduce the cost of maintenance dredging.

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If you or your staff have any questions regarding this activity, please contact Steve Ireland at (409) 766-3131.

Sincerely,

Carolyn Murphy  
Chief, Environmental Section

Enclosure





**UNITED STATES DEPARTMENT OF COMMERCE**  
**National Oceanic and Atmospheric Administration**  
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office  
263 13<sup>th</sup> Ave. South  
St. Petersburg, FL 33701  
(727) 824-5312, FAX (727) 824-5309  
<http://sero.nmfs.noaa.gov>

**AUG 22 2007**

F/SER3:TM

Ms. Carolyn Murphy  
Chief, Environmental Branch  
Department of the Army  
Galveston District, Corps of Engineers  
P.O. Box 1229  
Galveston, TX 77553-1229

Dear Ms. Murphy:

This correspondence responds to the Department of the Army's letter dated August 8, 2007, regarding the proposed construction of a new east jetty at the Mouth of the Colorado River Project, Matagorda County, Texas.

As requested, enclosed is a list of federally-protected species under the jurisdiction of the National Marine Fisheries Service for the state of Texas.

We look forward to continued cooperation with the Army in conserving our endangered and threatened resources. If you have any questions regarding the ESA consultation process, please contact Mr. Robert Hoffman, fishery biologist, at (727) 824-5312, or by e-mail at [Robert.Hoffman@noaa.gov](mailto:Robert.Hoffman@noaa.gov).

Sincerely,

David M. Bernhart  
Assistant Regional Administrator  
Protected Resources Division

Enclosure

File: 1514-22.F.1.TX





Endangered and Threatened Species and Critical Habitats  
under the Jurisdiction of the NOAA Fisheries Service



**Texas**

Listed Species	Scientific Name	Status	Date Listed
<b>Marine Mammals</b>			
blue whale	<i>Balaenoptera musculus</i>	Endangered	12/02/70
finback whale	<i>Balaenoptera physalus</i>	Endangered	12/02/70
humpback whale	<i>Megaptera novaengliae</i>	Endangered	12/02/70
sei whale	<i>Balaenoptera borealis</i>	Endangered	12/02/70
sperm whale	<i>Physeter macrocephalus</i>	Endangered	12/02/70
<b>Turtles</b>			
green sea turtle	<i>Chelonia mydas</i>	Threatened <sup>1</sup>	07/28/78
hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Endangered	06/02/70
Kemp's ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered	12/02/70
leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered	06/02/70
loggerhead sea turtle	<i>Caretta caretta</i>	Threatened	07/28/78
<b>Fish</b>			
smalltooth sawfish	<i>Pristis pectinata</i>	Endangered	04/01/03

**Designated Critical Habitat**

None

**Species Proposed for Listing**

None

**Proposed Critical Habitat**

None

<sup>1</sup> Green turtles are listed as threatened, except for breeding populations of green turtles in Florida and on the Pacific Coast of Mexico, which are listed as endangered



## Texas

Candidate Species <sup>2</sup>	Scientific Name
none	

Species of Concern <sup>3</sup>	Scientific Name
<b>Fish</b>	
dusky shark	<i>Carcharhinus obscurus</i>
largetooth sawfish	<i>Pristis pristis</i>
night shark	<i>Carcharhinus signatus</i>
saltmarsh topminnow	<i>Fundulus jenkinsi</i>
sand tiger shark	<i>Carcharias taurus</i>
speckled hind	<i>Epinephelus drummondhayi</i>
Warsaw grouper	<i>Epinephelus nigritus</i>
white marlin	<i>Tetrapturus albidus</i>
<b>Invertebrates</b>	
ivory bush coral	<i>Oculina varicosa</i>

<sup>2</sup> The Candidate Species List has been renamed the Species of Concern List. The term "candidate species" is limited to species that are the subject of a petition to list and for which NOAA Fisheries Service has determined that listing may be warranted (69 FR 19975).

<sup>3</sup> Species of Concern are not protected under the Endangered Species Act, but concerns about their status indicate that they may warrant listing in the future. Federal agencies and the public are encouraged to consider these species during project planning so that future listings may be avoided.



# United States Department of the Interior

## FISH AND WILDLIFE SERVICE

Division of Ecological Services

17629 El Camino Real #211

Houston, Texas 77058-3051



February 2007

This responds to your request for threatened and endangered species information in the Clear Lake Ecological Services Field Office's area of responsibility. According to Section 7(a)(2) of the Endangered Species Act and the implementing regulations, it is the responsibility of each federal agency to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any federally listed species. Therefore, we are providing information to assist you in meeting your obligations under the Endangered Species Act.

A county by county listing of federally listed threatened and endangered species that occur within this office's work area can be found at <http://www.fws.gov/southwest/es/EndangeredSpecies/lists/ListSpecies.cfm>. You should use the county by county listing and other current species information to determine whether suitable habitat for a listed species is present at your project site. If suitable habitat is present, a qualified individual should conduct surveys to determine whether a listed species is present.

After completing a habitat evaluation and/or any necessary surveys, you should evaluate the project for potential effects to listed species and make one of the following determinations:

**No effect** – the proposed action will not affect federally listed species or critical habitat (i.e., suitable habitat for the species occurring in the project county is not present in or adjacent to the action area). No coordination or contact with the Service is necessary. However, if the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered.

**Is not likely to adversely affect** – the project may affect listed species and/or critical habitat; however, the effects are expected to be discountable, insignificant, or completely beneficial. Certain avoidance and minimization measures may need to be implemented in order to reach this level of effects. You should seek written concurrence from the Service that adverse effects have been eliminated. Be sure to include all of the information and documentation you used to reach your decision with your request for concurrence. The Service must have this documentation before issuing a concurrence.

**Is likely to adversely affect** – adverse effects to listed species may occur as a direct or indirect result of the proposed action or its interrelated or interdependent actions, and the effect is not discountable, insignificant, or beneficial. If the overall effect of the proposed action is beneficial to the listed species but also is likely to cause some adverse effects to individuals of that species, then the proposed action "is likely to adversely affect" the listed species. An "is likely to adversely affect" determination requires formal Section 7 consultation with this office.

Regardless of your determination, the Service recommends that you maintain a complete record of the evaluation, including steps leading to the determination of affect, the qualified personnel conducting the evaluation, habitat conditions, site photographs, and any other related articles.

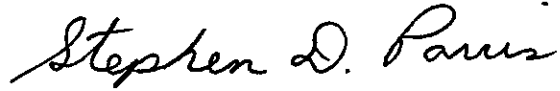
TAKE PRIDE  
IN AMERICA 

Threatened and Endangered Species Information  
Page 2

The Service's Consultation Handbook is available online to assist you with further information on definitions, process, and fulfilling Endangered Species Act requirements for your projects at <http://endangered.fws.gov/consultations/s7hndbk/s7hndbk.htm>.

If we can further assist you in understanding your obligations under the Endangered Species Act, please contact Kathy Nemec, Edith Erfling, or Catherine Yeargan at 281/286-8282.

Sincerely,

A handwritten signature in cursive script that reads "Stephen D. Parris".

Stephen D. Parris  
Field Supervisor, Clear Lake Field Office



REPLY TO  
ATTENTION OF

**DEPARTMENT OF THE ARMY**  
GALVESTON DISTRICT, CORPS OF ENGINEERS  
P. O. BOX 1229  
GALVESTON, TEXAS 77553-1229

December 19, 2007

Environmental Section

David M. Bernhart  
Assistant RA for Protected Resources  
Southeast Regional Office  
National Marine Fisheries Service  
263 13th Avenue South  
St. Petersburg, FL 33701

Dear Mr. Bernhart:

The purpose of this letter is to request the National Marine Fisheries Service's concurrence with the enclosed Biological Assessment (BA) for the Construction of a New East Jetty, Mouth of the Colorado River Project. The assessment addresses the project's potential to affect federally-listed threatened and endangered species and species of concern. The project is located in and near wintering piping plover critical habitat and, thus, may affect this species and its habitat. The overall conclusion of the assessment is that the project is not likely to adversely affect the piping plover or any federally-listed threatened or endangered species, nor will it adversely modify critical habitat.

Pursuant to 50 CFR 402.13, I am hereby requesting your written concurrence with the BA's conclusion. We appreciate your continued cooperation in allowing us to fulfill our responsibilities under the Endangered Species Act. If you or your staff have any questions regarding this activity, please contact Steve Ireland at (409) 766-3131.

Sincerely,

Carolyn Murphy  
Chief, Environmental Section

Enclosure

CF:

Mr. Rusty Swafford  
National Marine Fisheries Service  
Habitat Conservation Division  
4700 Avenue U  
Galveston, Texas 77551



**DEPARTMENT OF THE ARMY**  
GALVESTON DISTRICT, CORPS OF ENGINEERS  
P. O. BOX 1229  
GALVESTON, TEXAS 77553-1229  
DECEMBER 19, 2007

Environmental Section

Mr. Steve Parris  
Field Supervisor  
U.S. Fish and Wildlife Service  
17629 El Camino Real, Suite 211  
Houston, Texas 77058

Dear Mr. Parris:

The purpose of this letter is to request the U. S. Fish and Wildlife Service's concurrence with the enclosed Biological Assessment (BA) for the Construction of a New East Jetty, Mouth of the Colorado River Project. The assessment addresses the project's potential to affect federally-listed threatened and endangered species and species of concern. The project is located in and near wintering piping plover critical habitat and, thus, may affect this species and its habitat. The overall conclusion of the assessment is that the project is not likely to adversely affect the piping plover or any federally-listed threatened or endangered species, nor will it adversely modify critical habitat.

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Sincerely,

A handwritten signature in cursive script, reading "Carolyn Murphy", is written over a horizontal line.

Carolyn Murphy  
Chief, Environmental Section

Enclosure

# **BIOLOGICAL ASSESSMENT FOR FEDERALLY-LISTED THREATENED AND ENDANGERED SPECIES**

## **CONSTRUCTION OF A NEW EAST JETTY MOUTH OF THE COLORADO RIVER MATAGORDA COUNTY, TEXAS**

### **1.0 INTRODUCTION**

#### **1.1 PURPOSE OF THE BIOLOGICAL ASSESSMENT**

This Biological Assessment (BA) is being prepared to fulfill the U.S. Army Corps of Engineers' (USACE) obligations under Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended. It is also being prepared to assist the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) in fulfilling their obligations under the ESA. The proposed Federal action is the construction of a new east jetty at the entrance of the Colorado River Navigation Channel in Matagorda County, Texas (Figure 1). This BA addresses the project's potential to affect federally-listed threatened and endangered species and species of concern.

#### **1.2 DESCRIPTION OF THE PROPOSED PROJECT**

The proposed action is the construction of a new east jetty between the existing east and west jetties at the entrance to the Colorado River Navigation Channel. This would reduce the shoaling rate and provide for safer navigation. Additionally, it would provide erosion protection to a section of the western shoreline of the channel that is currently eroding due to wave action. The structure is expected to substantially reduce the wave action in this area.

The existing configuration at the entrance to the Colorado River Navigation Channel consists of an entrance channel, a navigation channel, a pair of jetties, and a "sediment training structure" (STS). The construction of the existing jetties and entrance channel was completed in April of 1990. The design dimensions of the entrance channel were 15 feet in depth and 100 to 300 feet in width. The minimum width between the east and west jetties is 1,000 feet, which is at the seaward ends of the jetties. The distance between the jetties increases towards land.

The existing jetties were designed with a sand bypass system that was intended to minimize the interruption of the predominantly east-to-west natural sand transport processes along the coastline (also known as littoral drift). The 3,500-foot east jetty includes a 1,000-foot weir section on the shoreward end of the structure to allow sand to pass westward to an "impoundment basin" between the east jetty and the entrance channel. Shoaling in the entrance channel was expected to be minimal. During routine channel dredging, accumulated sand in the impoundment basin would be dredged from the basin and pumped over the 2,900-foot west jetty via dredge pipeline to the surf zone west of the channel entrance. This would allow littoral drift



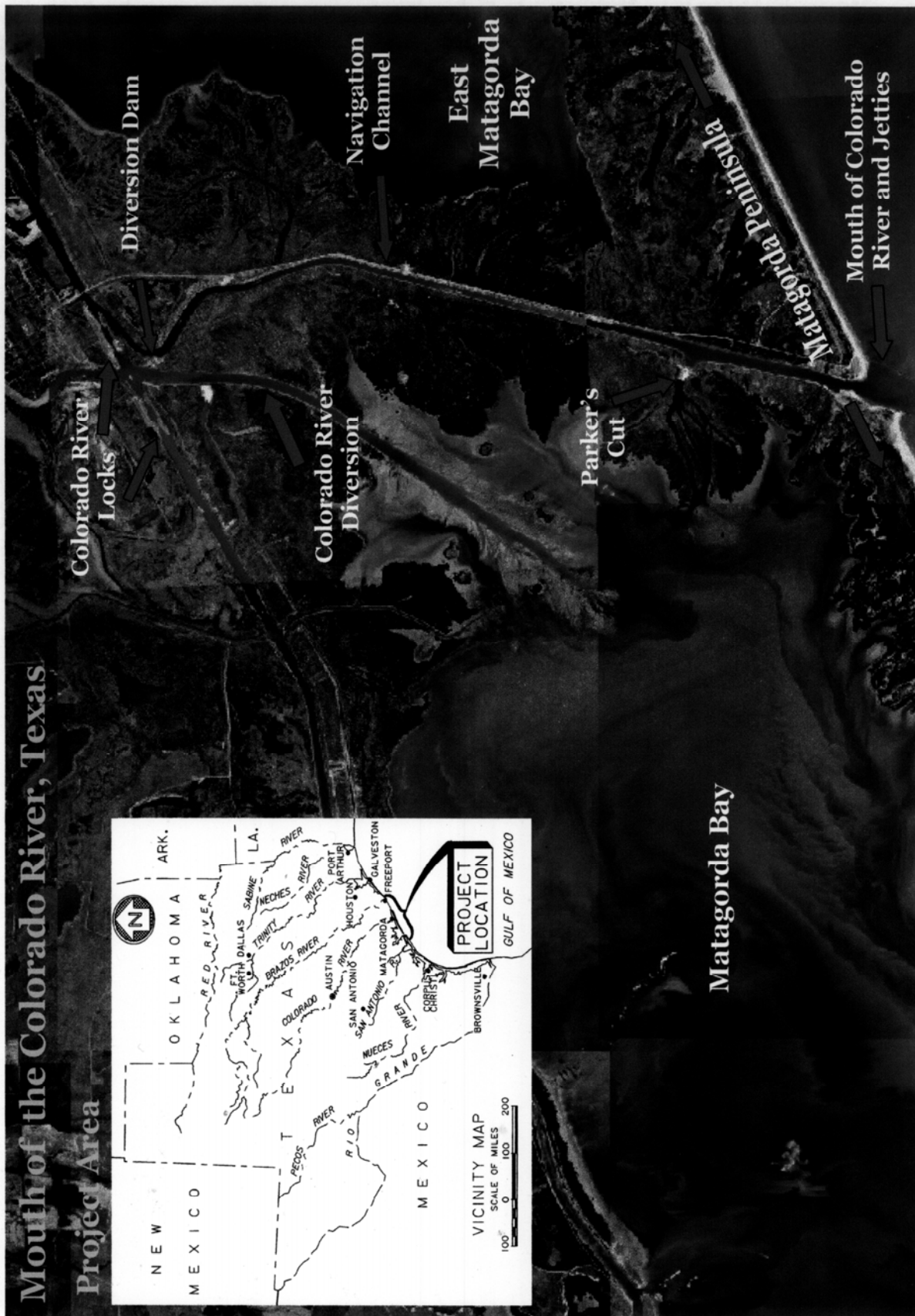


Figure 1 – Project Location

to continue to the west by natural processes. The original design prescribed a 2-year maintenance dredging interval.

The sand bypass system has not worked as intended. The amount of sedimentation estimated in the design of the sand bypass system was significantly underestimated. Also, since the Colorado River flows were diverted into West Matagorda Bay in 1992 and the connection between the navigation channel and Matagorda Bay through Parker's Cut was closed, the natural flushing of the channel by river flows has not been occurring. Sand does not enter the impoundment basin as expected and tends to accumulate in spits on either side of the river mouth, particularly on the east side. There is also erosion on the west bank of the river shoreward of the west jetty.

In 2003, the District constructed a 550-foot "sediment training structure" seaward from the east shoreline at the coastal inlet. It was intended to direct sand into the impoundment basin and to diminish spit formation in the channel. However, sand quickly filled to the top of the structure and subsequently buried it. Wind-blown sand subsequently passed over the buried structure. The entrance channel has still been subject to shoaling within 4 to 6 months of dredging, creating an impediment to safe and reliable navigation of the channel.

The area where the new jetty would be constructed was previously the location of the navigation channel, which has shifted to the west. The area now primarily consists of accumulated sand and shallow water. The proposed structure would be approximately 2,750 feet long, in three segments, as shown in Figure 2. The entire length of the new jetty would be impermeable (i.e. there would not be a weir section as with the existing east jetty). It would be constructed of varied rock sizes. The landward segment, approximately 550 feet long, would be constructed on top of the existing STS. The middle segment, approximately 700 feet long, would angle to the southwest toward the west jetty. This segment would be constructed on the land. The seaward segment, approximately 1,500 feet long, would be constructed parallel to the west jetty. The distance between the west jetty and the seaward segment of the new east jetty would be 400 to 500 feet. The existing east jetty would remain in place.

Construction will be performed by either land-based or waterborne equipment. Bulldozers, draglines or similar equipment will be used to excavate sand from the construction template. Cranes or similar equipment will be used to unload and position the rock. It is also possible that the rock will be transported to the project site and placed by dump truck. The duration of construction has not yet been determined.

The District anticipates that sand that accumulates between the new and old east jetties would be transported to the west of the west jetty at an appropriate frequency to maintain the littoral drift sand budget. With the construction of the new jetty, the District expects that the project will perform as originally intended, minimizing shoaling and allowing for less frequent dredging than is currently needed.

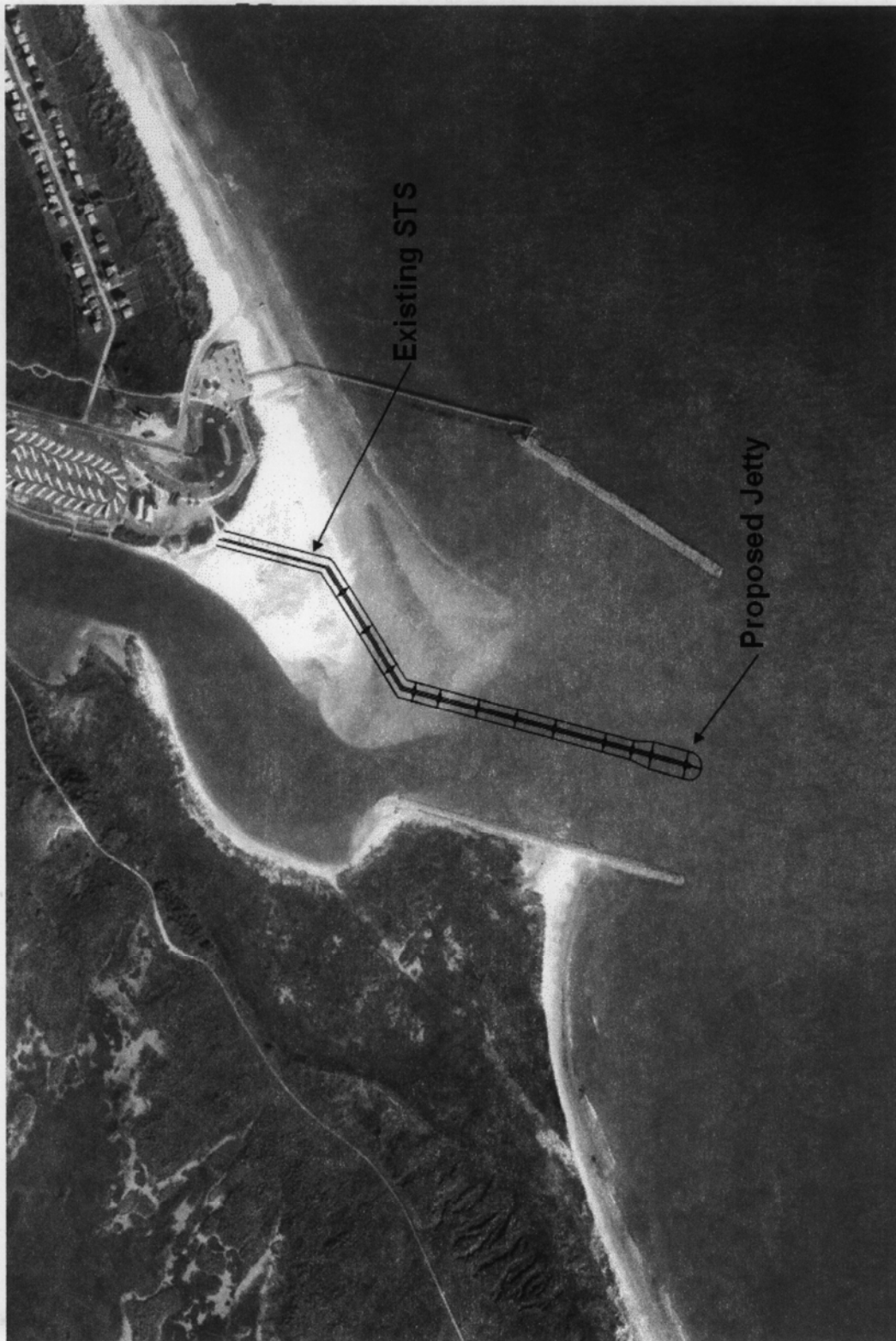


Figure 2 – Proposed New East Jetty

## 2.0 FEDERALLY-LISTED THREATENED AND ENDANGERED SPECIES AND SPECIES OF CONCERN

The proposed project area is located at the mouth of the Colorado River in Matagorda County, Texas. This area is on the mid-coast of the Gulf of Mexico. Table 1 includes the list of threatened and endangered species and species of concern considered by the USFWS and the NMFS to occur in Texas and/or Matagorda County.

**Table 1**  
**List of Threatened and Endangered Species and Species of Concern**

Common Name	Scientific Name	Listing Status
BIRDS		
Bald eagle	<i>Haliaeetus leucocephalus</i>	Recently De-listed
Brown pelican	<i>Pelecanus occidentalis</i>	Endangered
Piping plover	<i>Charadrius melodus</i>	Threatened
Whooping crane	<i>Grus Americana</i>	Endangered
REPTILES		
Green sea turtle	<i>Chelonia mydas</i>	Threatened
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Endangered
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered
Loggerhead sea turtle	<i>Caretta caretta</i>	Threatened
MARINE MAMMALS		
Blue whale	<i>Balaenoptera musculus</i>	Endangered
Finback whale	<i>Balaenoptera physalus</i>	Endangered
Humpback whale	<i>Megaptera novaengliae</i>	Endangered
Sei whale	<i>Balaenoptera borealis</i>	Endangered
Sperm whale	<i>Physeter macrocephalus</i>	Endangered
FISH		
Dusky shark	<i>Carcharhinus obscurus</i>	Species of Concern
Large-tooth sawfish	<i>Pristis pristis</i>	Species of Concern
Night shark	<i>Carcharhinus signatus</i>	Species of Concern
Saltmarsh topminnow	<i>Fundulus jenkinsi</i>	Species of Concern
Sand tiger shark	<i>Carcharias taurus</i>	Species of Concern
Smalltooth sawfish	<i>Pristis pectinata</i>	Endangered
Speckled hind	<i>Epinephelus drummondhayi</i>	Species of Concern
Warsaw grouper	<i>Epinephelus nigritus</i>	Species of Concern
White marlin	<i>Tetrapturus albidus</i>	Species of Concern
INVERTEBRATES		
Ivory bush coral	<i>Oculina varicosa</i>	Species of Concern

## 2.1 BALD EAGLE

The U.S. Fish and Wildlife Service recently removed the bald eagle from the list of threatened and endangered wildlife in the lower 48 states of the U. S., effective on August 8, 2007 (72 FR 37346 (2007)). This action was implemented because available data indicates that the species has recovered, primarily due to the reduction in use of certain pesticides (such as DDT), habitat protection, and management actions. Although the bald eagle is no longer protected under the ESA, potential effects on this species were considered in this assessment since the protections provided by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act remain in effect.

The bald eagle is a rare migrant and winter resident in Texas. Migrating and wintering bald eagles typically arrive in Texas in November and depart sometime in February. They are found primarily in association with reservoirs, rivers or other large bodies of water where they feed on fish, carrion, and waterfowl. Breeding populations occur primarily in the eastern half of the state and along coastal counties from Rockport to Houston. Non-breeding or wintering populations are located primarily in the Panhandle, Central, and East Texas, and in other areas of suitable habitat throughout the state (TPWD 2007a). Based on this information, bald eagles could potentially occur in the project area. However, due to the lack of suitable perch sites in the project area, it is unlikely that there would be any persistent use of the area by eagles.

## 2.2 BROWN PELICAN

The brown pelican almost completely disappeared from the Texas coast by the 1960's, largely due to the use of agricultural pesticides that bio-accumulate in the marine food chain and cause reproductive failure (King et al. 1977; Schreiber 1980). Since then, the use of chlorinated hydrocarbons for pest control has declined and the brown pelican has slowly recovered and spread through its original range. After years of unsuccessful nesting attempts in the Matagorda Bay area, nesting activity has been on the increase since the late 1980's. It is now common along the Texas coast and it nests on isolated islands from the southern tip of Texas to Galveston Bay. Pelicans have been successfully nesting for a number of years on Sundown Island in Matagorda Bay, about 20 miles southwest of the project site. This species is a common resident of the project area.

## 2.3 PIPING PLOVER

The piping plover is listed as a threatened species in coastal Texas. An inhabitant of coastal beaches and tidal flats, the piping plover is a regular migrant along the Texas coast, where it may also overwinter (Oberholser 1974; Haig and Oring 1985, 1988; Haig et al. 1988). Piping plovers feed in moist sand along beaches and sand-mud flats around inlets and estuaries (Chapman 1984). The two major populations now winter along North and South Padre Island and Bolivar Flats in Texas (50 FR 50726 (1985)); Haig and Oring 1985). The beach zone in the project site is located within designated wintering piping plover Critical Habitat Unit TX-27. Also, Unit TX-23 is located immediately adjacent to the project area to the west along Matagorda Peninsula (65 FR 41782 (2000)). Therefore, the presence of piping plover is likely in the project area, particularly during the overwintering period.

## 2.4 WHOOPING CRANE

The Aransas National Wildlife Refuge and vicinity serves as the sole wintering grounds for the only breeding population of whooping cranes in Texas. Each fall, the cranes fly 2,600 miles from northern Canada to the oak savannas, salt flats and bays of the Texas coast, where they feed on crabs, clams, shrimp, frogs, small fish, crayfish, snails, roots and tubers of plants, acorns, sorghum, and other grains (Oberholser 1974). Whooping cranes do not normally stray from their traditional breeding and feeding grounds. The project site does not have suitable habitat to sustain whooping cranes. Only the unlikely transient individual would occur in the project area.

## 2.5 GREEN SEA TURTLE

Adult green sea turtles are herbivorous, feeding primarily on seagrasses and algae (NMFS 2007a). The green sea turtle was historically the most abundant sea turtle in Texas (Hildebrand 1982). Overfishing brought about a rapid decline, although this species can still be found on the seagrass meadows of the lower Laguna Madre (Rabalais and Rabalais 1980). The green sea turtles in these areas are mainly small juveniles. It is unlikely that this species would occur in the project area.

## 2.6 HAWKSBILL SEA TURTLE

Hawksbill turtles are most commonly associated with coral reef habitats (NMFS 2007b). Texas and Florida are the only continental U.S. states where hawksbills are sighted with any regularity. Most sightings involve post-hatchlings and juveniles, which are believed to originate from nesting beaches in Mexico. Adults are extremely rare, and Hildebrand (1983) believes that the hawksbills occurring in Texas waters are strays. Due to the lack of preferred habitat along the Texas coast and the absence of nesting in Texas, it is not likely that this species would occur in the project area.

## 2.7 KEMP'S RIDLEY SEA TURTLE

The only endangered sea turtle that might be expected to use the Matagorda Bay System is the Kemp's Ridley sea turtle, the rarest sea turtle in the world. Only juveniles are expected in the bays, as adults seem confined to the Gulf. Distribution appears closely related to the abundance of seagrass beds and blue crabs, a favorite food item (Lutcavage and Musick 1985). Only one major nesting colony exists, located on an 11-mile stretch of coastline near Rancho Nuevo in Tamaulipas, Mexico, some 186 miles south of the Rio Grande. A secondary nesting population has been established on Padre Island National Seashore (TPWD 2007b). In recent years, there has been an increase in the number of Kemp's Ridley nests reported along the Texas coast. During the 2007 nesting season, there were reports of nesting at eleven localities, from Bolivar Peninsula to Boca Chica Beach, with four nests reported on nearby Matagorda Peninsula and eight on Matagorda Island (NPS 2007). It is therefore possible that this species could occur at the project site during nesting season.

## 2.8 LEATHERBACK SEA TURTLE

The leatherback sea turtle is a highly pelagic species, tending to keep to deeper offshore waters, where it feeds mainly on jellyfish and tunicates (TPWD 2007c). It is rare along the Texas coast. Due to its rarity in this area, it is not likely to occur in the project area.

## 2.9 LOGGERHEAD SEA TURTLE

Loggerhead sea turtles are capable of living in a variety of environments, such as in brackish waters of coastal lagoons, river mouths, and tropical and temperate waters above 50 degrees Fahrenheit (TPWD 2007d). They are found worldwide. The major nesting beaches are located in the southeastern United States, primarily along the Atlantic coast of Florida, North Carolina, South Carolina, and Georgia. In Texas, they are found in the Gulf of Mexico and are occasional visitors to the Texas coast. Only minor and solitary nesting has been recorded along the coasts of the Gulf of Mexico. Although the major nesting concentrations in the United States are found in South Florida, loggerheads nest from Texas to Virginia (USFWS 2007). Therefore, there is potential for this species to occur at the project site.

## 2.10 WHALE SPECIES

The five species of whales listed by the NMFS are known to occur in the Gulf of Mexico off the Texas coast. Since whales are open-ocean species, they normally would not be expected to enter the shallow water habitat of the project site.

## 2.11 DUSKY SHARK

The dusky shark is a large shark with a wide-ranging distribution in warm temperate to tropical waters, including the Gulf of Mexico. It is coastal and pelagic in its distribution, where it occurs from the surf zone to well offshore. Its diet includes bony fishes, cartilaginous fishes, crustaceans (e.g. crabs and shrimp), and cephalopods (e.g. octopus and squid). This shark is known to make seasonal migrations in response to temperature changes, moving northward in summer and southward in fall (Compagno 1984). In NMFS tagging studies, dusky sharks tagged in New England were recaptured in the southwestern Gulf of Mexico. Known coastal nursery grounds are located off New Jersey to South Carolina (Cortes et al. 2006). Given the distribution of the dusky shark, it is possible that this species could occur in the project area.

## 2.12 LARGETOOTH SAWFISH

Historical occurrences of largetooth sawfish in North America were strictly confined to shallow (<10 m), near-shore, warm-temperate and tropical waters (>18-30°C), estuarine localities, partly enclosed lagoons, and similar situations. In the United States, largetooth sawfish were reported mainly along the Texas coast and east into Florida waters, but it is now considered extirpated in U. S. waters. The last confirmed largetooth sawfish reported in Texas was in 1943 (NMFS 2007f). Therefore, it is extremely unlikely that this species would occur in the project area.

### 2.13 NIGHT SHARK

The night shark is a deep-water shark reported in waters from Delaware south to Brazil, including the Gulf of Mexico. This shark is usually found at depths greater than 150-200 fathoms during the day and 100 fathoms at night (NMFS 2007g). Since the project area lacks any deep-water habitat, is very unlikely that this species would occur in the project area.

### 2.14 SALTMARSH TOPMINNOW

The saltmarsh topminnow is endemic to the north-central coast of the Gulf of Mexico of the southern United States from Galveston Bay, Texas eastward through Louisiana, Mississippi, Alabama and parts of western Florida. This species tends to live in salt marshes and brackish water. It requires shallow, flooded marsh surfaces for breeding and feeding (NMFS 2007h). Due to the lack of suitable habitat within the immediate project area, which is outside the known range of this species, it is unlikely that this species would occur in the project area.

### 2.15 SAND TIGER SHARK

The sand tiger shark has a broad inshore distribution. In the Western Atlantic, this shark occurs from the Gulf of Maine to Florida, in the northern Gulf of Mexico, in the Bahamas and in Bermuda. They are generally a coastal species, usually being found from the surf zone to depths around 75 feet. They may also be found in shallow bays. They usually live near the bottom, but may be found throughout the water column (NMFS 2007i). Given its distribution, it is possible that the sand tiger shark could occur in the project area. However, given its scarcity, this is unlikely.

### 2.16 SMALLTOOTH SAWFISH

Smalltooth sawfish have been reported in the Pacific and Atlantic Oceans and in the Gulf of Mexico. Sawfish species inhabit shallow coastal waters of tropical seas and estuaries throughout the world. They are usually found in shallow waters very close to shore over muddy and sandy bottoms. They are often found in sheltered bays, on shallow banks, and in estuaries or river mouths. The U.S. population of smalltooth sawfish is found only in the Atlantic Ocean and Gulf of Mexico. Historically, the U.S. population was common throughout the Gulf of Mexico from Texas to Florida, and along the east coast from Florida to Cape Hatteras. The current range of this species has contracted to peninsular Florida, and they are relatively common only in the Everglades region at the southern tip of the state (NMFS 2007d). It is very unlikely that this species would occur in the project area.

### 2.17 SPECKLED HIND

The speckled hind inhabits warm, moderately deep waters from North Carolina to Cuba, including Bermuda, the Bahamas and the Gulf of Mexico. The preferred habitat is hard bottom reefs in depths ranging from 150 to 300 feet (NMFS 2007j). Due to the very shallow water and sand substrate in the project area, it is very unlikely that this species would be found in the project area.



## 2.18 WARSAW GROUPE

The Warsaw grouper is a very large fish found on the deep-water reefs of the southeastern United States. This fish ranges from North Carolina to the Florida Keys and throughout much of the Caribbean and Gulf of Mexico to the northern coast of South America. This species inhabits deepwater reefs on the continental shelf break in waters 350 to 650 feet deep (NMFS 2007k). Due to the very shallow water and sand substrate in the project area, it is very unlikely that this species would be found in the project area.

## 2.19 WHITE MARLIN

White marlin are found in offshore waters throughout the tropical and temperate Atlantic Ocean and adjacent seas. White marlin preferred habitat is deep blue water over 330 feet deep with salinity around 35 parts per thousand and a surface temperature of about 72 degrees Fahrenheit. Prey items include a variety of fishes, crustaceans, and cephalopods (NMFS 2007l). Since this is a deep-water species and the project site does not provide any deep water habitat, this species is very unlikely to be found in the project area.

## 2.20 IVORY BUSH CORAL

Ivory bush coral is endemic to the southeastern U. S. and ranges from Cape Hatteras, North Carolina through the Gulf of Mexico and Caribbean, although the main population is of east-central Florida. Colonies of this coral are found in depths of 160 to 500 feet on substrates of limestone rubble, low-relief limestone outcrops, and high-relief, steeply sloping prominences (NMFS 2007e). The shallow water in the project does not provide suitable habitat for this species so it is extremely unlikely that this species would be found in the project area.

# 3.0 EFFECTS OF PROPOSED ACTION ON LISTED SPECIES AND SPECIES OF CONCERN

## 3.1 EFFECTS ON BALD EAGLE

Since bald eagles are temporary migrants that are not likely to utilize the area due to lack of suitable habitat, the proposed project will have no effect on this species.

## 3.2 EFFECTS ON BROWN PELICAN

Foraging brown pelicans are common along the Texas Coast and may be found in the project area. However, no nesting sites are located in the project area. Further, pelicans are highly mobile and are able to relocate to avoid any disturbance from construction activities. The proposed project is not likely to adversely affect this species.

### 3.3 EFFECTS ON PIPING PLOVER

The proposed project is located within and adjacent to designated wintering piping plover critical habitat. However, the project is not likely to adversely affect the piping plover or critical habitat. The duration of impacts from construction activity would be relatively short and piping plovers are adaptable enough to shift foraging areas to avoid the immediate construction site. In the long-term, the completed structure is expected to be beneficial to designated critical habitat. Once constructed, it is expected that the new jetty will cause sand to accrete on the beach to the east of the structure, nourishing the beach and providing additional foraging areas for the piping plover.

The project is also expected to be beneficial to Critical Habitat Unit TX-23, on the west bank of the Mouth of the Colorado River. The structure would act as protection to the west bank of the river, which currently experiences significant erosion along the northern end of the west jetty. The reduction in shoaling rate would also be beneficial to the piping plover. While material excavated during maintenance dredging would continue to be used to nourish the beach within Unit TX-23, the need to access the site with the construction equipment needed to place dredge pipelines would be reduced from an annual or more frequent basis to about once every two years. The location and timing of the placement of dredged materials would be coordinated with USFWS prior to placement.

### 3.4 EFFECTS ON WHOOPING CRANE

The winter population of whooping crane remains largely confined to the Aransas National Wildlife Refuge and only a few individuals have been observed outside that area. Since the project site does not contain suitable habitat for the whooping crane, the project will have no affect on this species.

### 3.5 EFFECTS ON SEA TURTLES

While sea turtles may occur in the project area, the proposed project is not likely to adversely affect any of these species. The species that have the highest probability of being encountered in the project area are Kemp's Ridley and loggerhead sea turtles. Kemp's Ridley turtles nest from April through July (USFWS and NMFS 1992) and loggerheads nest from late April through September (TPWD 2007d).

If construction or maintenance activities in the beach zone occur during the nesting season for these species, conservation measures and monitoring of construction would be implemented to reduce the potential impact on these species and help to ensure that the project is not likely to adversely affect sea turtles. During construction, the beach would be monitored daily before any work that could impact sea turtles begins. Construction personnel and Corps construction inspectors would be trained to recognize and avoid impacts to sea turtles, and to understand the reporting and monitoring requirements for the project.

Any turtle, nests, or eggs found by monitors or reported by construction personnel would be safe-guarded until they can be relocated by the appropriate authorities. Ruts in the beach

would be smoothed out at the end of construction each day so that any new turtle tracks would be visible and small turtles would not become entrapped. Nighttime light interference is not anticipated for this project, but could be avoided by the use of directional and shielded lighting if necessary. Maintenance dredging in the entrance channel would be conducted using cutterhead dredges, which move at slow enough speeds that turtles would be able to move out of the way of the cutterhead.

### 3.6 EFFECTS ON WHALES

Whales occur in offshore waters and none of these species are likely to wander into shallow coastal estuaries. Therefore, the proposed project will have no effect on these species.

### 3.8 EFFECTS ON SMALLTOOTH SAWFISH

Due to the scarcity of this the smalltooth sawfish and the unlikelihood of occurrence in the project area, the proposed project will have no affect on this species.

### 3.9 EFFECTS ON IVORY BUSH CORAL

This species does not exist in the project vicinity, nor does suitable habitat for this species exist in the project area. Therefore, the proposed project will have no effect on this species.

### 3.10 EFFECTS ON FISH SPECIES OF CONCERN

With the possible exception of the dusky shark, habitat for these species does not exist in the project vicinity. Therefore, it is unlikely that these species would be found in the project area. Accordingly, the proposed project will have no affect on the largetooth sawfish, night shark, saltmarsh topminnow, sand tiger shark, speckled hind, Warsaw grouper, and white marlin.

Although there is a possibility that the dusky shark could occur in the project area, it is a wide-ranging and migratory species and any occurrence is likely to be brief. The project area would not represent a significant portion of the dusky shark's range or habitat. Therefore, the proposed project is not likely to adversely affect the dusky shark

## 4.0 CONCLUSIONS

The overall conclusion is that the proposed project is not likely to adversely affect any federally-listed threatened or endangered species, nor will it adversely modify critical habitat. Also, the project is not likely to adversely affect any species of concern. Although several threatened or endangered species may occur in the project vicinity, no regularly used habitat is known to exist in the immediate project site. Should any of these species wander into the project vicinity, the size and mobility of these animals would allow them to avoid the immediate project site during construction and maintenance operations.

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**United States Department of the Interior**  
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January 23, 2008

Ms. Carolyn Murphy  
Chief, Environmental Section  
Department of the Army  
Galveston District, Corps of Engineers  
P.O. Box 1229  
Galveston, TX 77553

Dear Ms. Murphy:

This responds to your letter dated December 19, 2007 requesting our concurrence with the U.S. Army Corps of Engineer (COE)' determination for the proposed construction of a new East Jetty at the Mouth of the Colorado River, Matagorda County, Texas is not likely to adversely affect any listed species under our jurisdiction. The proposed construction of the East Jetty would include beneficial use of the dredge material through beach nourishment in an area adjacent to the project location.

The Biological Assessment did not contain enough project specific information to allow us to concur with your determination of not likely to adversely affect. We have attached a letter of concurrence for another COE project that lists very specific project details, avoidance and minimization measures that will be followed during construction phases.

We recommend the incorporation of these avoidance and minimization measures into your project. If they are not practical for this project, then you should consider initiating a formal Section 7 consultation with the U.S Fish and Wildlife Service.

Please contact staff biologist Catherine Yeargan at 281/286-8282 if you have any questions regarding these recommendations.

Sincerely,

Stephen D. Parris  
Field Supervisor, Clear Lake ES Field Office

Enclosure

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cc:

J. Shubert, Texas Parks and Wildlife Department

R. Swaford, NMFS, Galveston

S. Ireland, USACE, Galveston





# United States Department of the Interior

**FISH AND WILDLIFE SERVICE**  
Division of Ecological Services  
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May 31, 2007

Fred Anthamatten  
Chief, Regulatory Branch  
Attn: Sam Watson  
Galveston District, Corps of Engineers  
P.O. Box 1229  
Galveston, Texas 77553-1229

Dear Mr. Anthamatten:

This responds to your letter dated April 9, 2007 requesting our concurrence with the U.S. Army Corps of Engineers (COE)' determination that the proposed widening of the Freeport Harbor Ship Channel (**Department of the Army Permit 23752**) in Brazoria County, Texas is not likely to adversely affect any listed species under our jurisdiction. The proposed widening of the ship channel would include beneficial use of the dredge material through beach nourishment in an area adjacent to the project location.

The COE has developed the following avoidance and minimization measures for use during construction:

1. The permittee will have all construction workers trained by qualified personnel to recognize protected species including shore birds, nesting sea turtles and their tracks, and on the avoidance and minimization measures required during project construction.
2. The permittee will provide the COE with the name of a single point of contact (POC) responsible for communicating, monitoring and reporting on endangered species issues during construction, including keeping an activities log. This POC will stop work in the event sea turtles, their nests or their eggs are found; the POC will safeguard them until they can be relocated by the appropriate, permitted individuals. In addition, this POC will ensure that no piping plovers are affected by work activities, and ensure loafing and/or resting birds are not in the project area during construction.
3. Material placed on the beach will be predominantly beach quality sand consistent in grain size, color and composition with the existing beach sand and free of hazardous materials.
4. Materials and equipment required for the project will be staged in upland areas, not on the beach, and transported as needed to the work sites. There will be no overnight storage of equipment on the beach.

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Chief, Regulatory Branch  
Attn: Sam Watson  
Permit 23752  
May 31, 2007  
Page 2

5. The number of vehicles transiting from the upland staging areas to the project sites will be kept to a minimum, all vehicles will use the same pathway whenever possible, and vehicle access will be confined to the immediate needs of the proposed project.
6. Placed dredged material will be maintained at a gradual slope, and after project completion all mud or wind tidal flats and/or project sites seaward of the mean high tide line will be restored to pre-construction slope or contours, and all ruts leveled.
7. No beach nourishment/dune restoration activities will be conducted during the peak sea turtle nesting season, from April 1 through July 15.
8. Any construction activities conducted during the remainder of the sea turtle nesting season (from July 15 through September 30) would require implementation of the following additional avoidance and minimization measures:
  - a) An independent, qualified monitor or monitors will be hired and trained by the permittee to monitor all construction activities, escort construction vehicles to and from work sites, and monitor for the presence of threatened and endangered species. The trained monitor will survey the beach daily for sea turtles, sea turtle tracks, sea turtle nests, and shore birds prior to the initiation of any construction activity, and periodically throughout the day. The monitor will keep a daily log documenting all surveys conducted during the beach construction project.
  - b) Permittee will smooth out ruts in the beach at the end of each construction day.
  - c) Use of night lights will be minimized, directed toward the construction activity area, and shielded from view outside of the construction activity area.

The U.S. Fish and Wildlife Service (Service) concurs with the COE's determination that the project is not likely to adversely affect any federally listed threatened or endangered species under our jurisdiction. This concurrence is based on a review of the project information and Service files, and is contingent upon implementation of the above avoidance and minimization measures. If the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered. Our comments are provided in accordance with the provisions of the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 703 et seq.

The NOAA Fisheries Protected Resource Branch (David Bernhart, 727/551-5767) should be contacted for information on listed species under their jurisdiction.

Chief, Regulatory Branch  
Attn: Sam Watson  
Permit 23752  
May 31, 2007  
Page 3

If you have any questions, or need additional information, please contact Catherine Yeargan at 281/286-8282.

Sincerely,



Stephen D. Parris  
Field Supervisor, Clear Lake ES Field Office



**DEPARTMENT OF THE ARMY**  
GALVESTON DISTRICT, CORPS OF ENGINEERS  
P. O. BOX 1229  
GALVESTON, TEXAS 77553-1229

March 11, 2008

Environmental Section

Mr. Steve Parris  
Field Supervisor  
U.S. Fish and Wildlife Service  
17629 El Camino Real, Suite 211  
Houston, Texas 77058

Dear Mr. Parris:

The purpose of this letter is to request the U. S. Fish and Wildlife Service's concurrence with the conclusions of the enclosed Biological Assessment (BA) for the Construction of a New East Jetty, Mouth of the Colorado River Project. This BA addresses the project's potential to affect federally-listed threatened and endangered species and species of concern. It contains revisions of the draft BA that we previously submitted to your office. The revisions include the avoidance and minimization measures recommended by the Service in its January 23, 2008 letter regarding the draft BA. The project is located in and near wintering piping plover critical habitat and potential nesting areas for sea turtles. Thus, the proposed action may affect these species and their habitat. After incorporating the Services recommendations, the overall conclusion of the assessment is that the project is not likely to adversely affect piping plovers, sea turtles, or any federally-listed threatened or endangered species, nor will it adversely modify critical habitat.

Pursuant to 50 CFR 402.13, I am hereby requesting your written concurrence with the revised BA's conclusion. We appreciate your continued cooperation in allowing us to fulfill our responsibilities under the Endangered Species Act. If you or your staff has any questions regarding this activity, please contact Steve Ireland at (409) 766-3131.

Sincerely,

A handwritten signature in cursive script, reading "Carolyn Murphy", is positioned above the typed name.

Carolyn Murphy  
Chief, Environmental Section

Enclosure

**BIOLOGICAL ASSESSMENT  
FOR FEDERALLY-LISTED  
THREATENED AND ENDANGERED SPECIES**

**CONSTRUCTION OF A NEW EAST JETTY  
MOUTH OF THE COLORADO RIVER  
MATAGORDA COUNTY, TEXAS**

**1.0 INTRODUCTION**

**1.1 PURPOSE OF THE BIOLOGICAL ASSESSMENT**

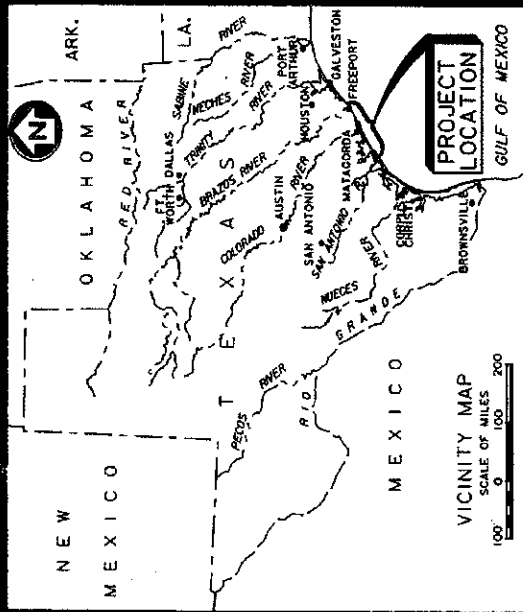
This Biological Assessment (BA) is being prepared to fulfill the U.S. Army Corps of Engineers' (USACE) obligations under Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended. It is also being prepared to assist the U.S. Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS) in fulfilling their obligations under the ESA. The proposed Federal action is the construction of a new east jetty at the entrance of the Colorado River Navigation Channel in Matagorda County, Texas (Figure 1). This BA addresses the project's potential to affect federally-listed threatened and endangered species and species of concern.

**1.2 DESCRIPTION OF THE PROPOSED PROJECT**

The proposed action is the construction of a new east jetty between the existing east and west jetties at the entrance to the Colorado River Navigation Channel. This would reduce the shoaling rate and provide for safer navigation. Additionally, it would provide erosion protection to a section of the western shoreline of the channel that is currently eroding due to wave action. The structure is expected to substantially reduce the wave action in this area.

The existing configuration at the entrance to the Colorado River Navigation Channel consists of an entrance channel, a navigation channel, a pair of jetties, and a "sediment training structure" (STS). The construction of the existing jetties and entrance channel was completed in April of 1990. The design dimensions of the entrance channel were 15 feet in depth and 100 to 300 feet in width. The minimum width between the east and west jetties is 1,000 feet, which is at the seaward ends of the jetties. The distance between the jetties increases towards land.

The existing jetties were designed with a sand bypass system that was intended to minimize the interruption of the predominantly east-to-west natural sand transport processes along the coastline (also known as littoral drift). The 3,500-foot east jetty includes a 1,000-foot weir section on the shoreward end of the structure to allow sand to pass westward to an "impoundment basin" between the east jetty and the entrance channel. Shoaling in the entrance channel was expected to be minimal. During routine channel dredging, accumulated sand in the impoundment basin would be dredged from the basin and pumped over the 2,900-foot west jetty via dredge pipeline to the surf zone west of the channel entrance. This would allow littoral drift



**Figure 1 – Project Location**

to continue to the west by natural processes. The original design prescribed a 2-year maintenance dredging interval.

The sand bypass system has not worked as intended. The amount of sedimentation estimated in the design of the sand bypass system was significantly underestimated. Also, since the Colorado River flows were diverted into West Matagorda Bay in 1992 and the connection between the navigation channel and Matagorda Bay through Parker's Cut was closed, the natural flushing of the channel by river flows has not been occurring. Sand does not enter the impoundment basin as expected and tends to accumulate in spits on either side of the river mouth, particularly on the east side. There is also erosion on the west bank of the river shoreward of the west jetty.

In 2003, the District constructed a 550-foot "sediment training structure" seaward from the east shoreline at the coastal inlet. It was intended to direct sand into the impoundment basin and to diminish spit formation in the channel. However, sand quickly filled to the top of the structure and subsequently buried it. Wind-blown sand subsequently passed over the buried structure. The entrance channel has still been subject to shoaling within 4 to 6 months of dredging, creating an impediment to safe and reliable navigation of the channel.

The area where the new jetty would be constructed was previously the location of the navigation channel, which has shifted to the west. The area now primarily consists of accumulated sand and shallow water. The proposed structure would be approximately 2,750 feet long, in three segments, as shown in Figure 2. The entire length of the new jetty would be impermeable (i.e. there would not be a weir section as with the existing east jetty). It would be constructed of varied rock sizes. The landward segment, approximately 550 feet long, would be constructed on top of the existing STS. The middle segment, approximately 700 feet long, would angle to the southwest toward the west jetty. This segment would be constructed on the land. The seaward segment, approximately 1,500 feet long, would be constructed parallel to the west jetty. The distance between the west jetty and the seaward segment of the new east jetty would be 400 to 500 feet. The existing east jetty would remain in place.

Construction will be performed by either land-based or waterborne equipment. Bulldozers, draglines or similar equipment will be used to excavate sand from the construction template. Cranes or similar equipment will be used to unload and position the rock. It is also possible that the rock will be transported to the project site and placed by dump truck. The duration of construction has not yet been determined.

The District anticipates that sand that accumulates between the new and old east jetties would be transported to the west of the west jetty at an appropriate frequency to maintain the littoral drift sand budget. With the construction of the new jetty, the District expects that the project will perform as originally intended, minimizing shoaling and allowing for less frequent dredging than is currently needed.



Figure 2 – Proposed New East Jetty



## 2.0 FEDERALLY-LISTED THREATENED AND ENDANGERED SPECIES AND SPECIES OF CONCERN

The proposed project area is located at the mouth of the Colorado River in Matagorda County, Texas. This area is on the mid-coast of the Gulf of Mexico. Table 1 includes the list of threatened and endangered species and species of concern considered by the USFWS and the NMFS to occur in Texas and/or Matagorda County.

**Table 1**  
**List of Threatened and Endangered Species and Species of Concern**

Common Name	Scientific Name	Listing Status
<b>BIRDS</b>		
Bald eagle	<i>Haliaeetus leucocephalus</i>	Recently De-listed
Brown pelican	<i>Pelecanus occidentalis</i>	Endangered
Piping plover	<i>Charadrius melodus</i>	Threatened
Whooping crane	<i>Grus Americana</i>	Endangered
<b>REPTILES</b>		
Green sea turtle	<i>Chelonia mydas</i>	Threatened
Hawksbill sea turtle	<i>Eretmochelys imbricata</i>	Endangered
Kemp's Ridley sea turtle	<i>Lepidochelys kempii</i>	Endangered
Leatherback sea turtle	<i>Dermochelys coriacea</i>	Endangered
Loggerhead sea turtle	<i>Caretta caretta</i>	Threatened
<b>MARINE MAMMALS</b>		
Blue whale	<i>Balaenoptera musculus</i>	Endangered
Finback whale	<i>Balaenoptera physalus</i>	Endangered
Humpback whale	<i>Megaptera novaengliae</i>	Endangered
Sei whale	<i>Balaenoptera borealis</i>	Endangered
Sperm whale	<i>Physeter macrocephalus</i>	Endangered
<b>FISH</b>		
Dusky shark	<i>Carcharhinus obscurus</i>	Species of Concern
Large-tooth sawfish	<i>Pristis pristis</i>	Species of Concern
Night shark	<i>Carcharhinus signatus</i>	Species of Concern
Saltmarsh topminnow	<i>Fundulus jenkinsi</i>	Species of Concern
Sand tiger shark	<i>Carcharias taurus</i>	Species of Concern
Smalltooth sawfish	<i>Pristis pectinata</i>	Endangered
Speckled hind	<i>Epinephelus drummondhayi</i>	Species of Concern
Warsaw grouper	<i>Epinephelus nigritus</i>	Species of Concern
White marlin	<i>Tetrapturus albidus</i>	Species of Concern
<b>INVERTEBRATES</b>		
Ivory bush coral	<i>Oculina varicosa</i>	Species of Concern

## 2.1 BALD EAGLE

The U.S. Fish and Wildlife Service recently removed the bald eagle from the list of threatened and endangered wildlife in the lower 48 states of the U. S., effective on August 8, 2007 (72 FR 37346 (2007)). This action was implemented because available data indicates that the species has recovered, primarily due to the reduction in use of certain pesticides (such as DDT), habitat protection, and management actions. Although the bald eagle is no longer protected under the ESA, potential effects on this species were considered in this assessment since the protections provided by the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act remain in effect.

The bald eagle is a rare migrant and winter resident in Texas. Migrating and wintering bald eagles typically arrive in Texas in November and depart sometime in February. They are found primarily in association with reservoirs, rivers or other large bodies of water where they feed on fish, carrion, and waterfowl. Breeding populations occur primarily in the eastern half of the state and along coastal counties from Rockport to Houston. Non-breeding or wintering populations are located primarily in the Panhandle, Central, and East Texas, and in other areas of suitable habitat throughout the state (TPWD 2007a). Based on this information, bald eagles could potentially occur in the project area. However, due to the lack of suitable perch sites in the project area, it is unlikely that there would be any persistent use of the area by eagles.

## 2.2 BROWN PELICAN

The brown pelican almost completely disappeared from the Texas coast by the 1960's, largely due to the use of agricultural pesticides that bio-accumulate in the marine food chain and cause reproductive failure (King et al. 1977; Schreiber 1980). Since then, the use of chlorinated hydrocarbons for pest control has declined and the brown pelican has slowly recovered and spread through its original range. After years of unsuccessful nesting attempts in the Matagorda Bay area, nesting activity has been on the increase since the late 1980's. It is now common along the Texas coast and it nests on isolated islands from the southern tip of Texas to Galveston Bay. Pelicans have been successfully nesting for a number of years on Sundown Island in Matagorda Bay, about 20 miles southwest of the project site. This species is a common resident of the project area.

## 2.3 PIPING PLOVER

The piping plover is listed as a threatened species in coastal Texas. An inhabitant of coastal beaches and tidal flats, the piping plover is a regular migrant along the Texas coast, where it may also overwinter (Oberholser 1974; Haig and Oring 1985, 1988; Haig et al. 1988). Piping plovers feed in moist sand along beaches and sand-mud flats around inlets and estuaries (Chapman 1984). The two major populations now winter along North and South Padre Island and Bolivar Flats in Texas (50 FR 50726 (1985)); Haig and Oring 1985). The beach zone in the project site is located within designated wintering piping plover Critical Habitat Unit TX-27. Also, Unit TX-23 is located immediately adjacent to the project area to the west along Matagorda Peninsula (65 FR 41782 (2000)). Therefore, the presence of piping plover is likely in the project area, particularly during the overwintering period.

## 2.4 WHOOPING CRANE

The Aransas National Wildlife Refuge and vicinity serves as the sole wintering grounds for the only breeding population of whooping cranes in Texas. Each fall, the cranes fly 2,600 miles from northern Canada to the oak savannas, salt flats and bays of the Texas coast, where they feed on crabs, clams, shrimp, frogs, small fish, crayfish, snails, roots and tubers of plants, acorns, sorghum, and other grains (Oberholser 1974). Whooping cranes do not normally stray from their traditional breeding and feeding grounds. The project site does not have suitable habitat to sustain whooping cranes. Only the unlikely transient individual would occur in the project area.

## 2.5 GREEN SEA TURTLE

Adult green sea turtles are herbivorous, feeding primarily on seagrasses and algae (NMFS 2007a). The green sea turtle was historically the most abundant sea turtle in Texas (Hildebrand 1982). Overfishing brought about a rapid decline, although this species can still be found on the seagrass meadows of the lower Laguna Madre (Rabalais and Rabalais 1980). The green sea turtles in these areas are mainly small juveniles. It is unlikely that this species would occur in the project area.

## 2.6 HAWKSBILL SEA TURTLE

Hawksbill turtles are most commonly associated with coral reef habitats (NMFS 2007b). Texas and Florida are the only continental U.S. states where hawksbills are sighted with any regularity. Most sightings involve post-hatchlings and juveniles, which are believed to originate from nesting beaches in Mexico. Adults are extremely rare, and Hildebrand (1983) believes that the hawksbills occurring in Texas waters are strays. Due to the lack of preferred habitat along the Texas coast and the absence of nesting in Texas, it is not likely that this species would occur in the project area.

## 2.7 KEMP'S RIDLEY SEA TURTLE

The only endangered sea turtle that might be expected to use the Matagorda Bay System is the Kemp's Ridley sea turtle, the rarest sea turtle in the world. Only juveniles are expected in the bays, as adults seem confined to the Gulf. Distribution appears closely related to the abundance of seagrass beds and blue crabs, a favorite food item (Lutcavage and Musick 1985). Only one major nesting colony exists, located on an 11-mile stretch of coastline near Rancho Nuevo in Tamaulipas, Mexico, some 186 miles south of the Rio Grande. A secondary nesting population has been established on Padre Island National Seashore (TPWD 2007b). In recent years, there has been an increase in the number of Kemp's Ridley nests reported along the Texas coast. During the 2007 nesting season, there were reports of nesting at eleven localities, from Bolivar Peninsula to Boca Chica Beach, with four nests reported on nearby Matagorda Peninsula and eight on Matagorda Island (NPS 2007). It is therefore possible that this species could occur at the project site during nesting season.

## 2.8 LEATHERBACK SEA TURTLE

The leatherback sea turtle is a highly pelagic species, tending to keep to deeper offshore waters, where it feeds mainly on jellyfish and tunicates (TPWD 2007c). It is rare along the Texas coast. Due to its rarity in this area, it is not likely to occur in the project area.

## 2.9 LOGGERHEAD SEA TURTLE

Loggerhead sea turtles are capable of living in a variety of environments, such as in brackish waters of coastal lagoons, river mouths, and tropical and temperate waters above 50 degrees Fahrenheit (TPWD 2007d). They are found worldwide. The major nesting beaches are located in the southeastern United States, primarily along the Atlantic coast of Florida, North Carolina, South Carolina, and Georgia. In Texas, they are found in the Gulf of Mexico and are occasional visitors to the Texas coast. Only minor and solitary nesting has been recorded along the coasts of the Gulf of Mexico. Although the major nesting concentrations in the United States are found in South Florida, loggerheads nest from Texas to Virginia (USFWS 2007). Therefore, there is potential for this species to occur at the project site.

## 2.10 WHALE SPECIES

The five species of whales listed by the NMFS are known to occur in the Gulf of Mexico off the Texas coast. Since whales are open-ocean species, they normally would not be expected to enter the shallow water habitat of the project site.

## 2.11 DUSKY SHARK

The dusky shark is a large shark with a wide-ranging distribution in warm temperate to tropical waters, including the Gulf of Mexico. It is coastal and pelagic in its distribution, where it occurs from the surf zone to well offshore. Its diet includes bony fishes, cartilaginous fishes, crustaceans (e.g. crabs and shrimp), and cephalopods (e.g. octopus and squid). This shark is known to make seasonal migrations in response to temperature changes, moving northward in summer and southward in fall (Compagno 1984). In NMFS tagging studies, dusky sharks tagged in New England were recaptured in the southwestern Gulf of Mexico. Known coastal nursery grounds are located off New Jersey to South Carolina (Cortes et al. 2006). Given the distribution of the dusky shark, it is possible that this species could occur in the project area.

## 2.12 LARGETOOTH SAWFISH

Historical occurrences of largetooth sawfish in North America were strictly confined to shallow (<10 m), near-shore, warm-temperate and tropical waters (>18-30°C), estuarine localities, partly enclosed lagoons, and similar situations. In the United States, largetooth sawfish were reported mainly along the Texas coast and east into Florida waters, but it is now considered extirpated in U. S. waters. The last confirmed largetooth sawfish reported in Texas was in 1943 (NMFS 2007f). Therefore, it is extremely unlikely that this species would occur in the project area.

### 2.13 NIGHT SHARK

The night shark is a deep-water shark reported in waters from Delaware south to Brazil, including the Gulf of Mexico. This shark is usually found at depths greater than 150-200 fathoms during the day and 100 fathoms at night (NMFS 2007g). Since the project area lacks any deep-water habitat, is very unlikely that this species would occur in the project area.

### 2.14 SALTMARSH TOPMINNOW

The saltmarsh topminnow is endemic to the north-central coast of the Gulf of Mexico of the southern United States from Galveston Bay, Texas eastward through Louisiana, Mississippi, Alabama and parts of western Florida. This species tends to live in salt marshes and brackish water. It requires shallow, flooded marsh surfaces for breeding and feeding (NMFS 2007h). Due to the lack of suitable habitat within the immediate project area, which is outside the known range of this species, it is unlikely that this species would occur in the project area.

### 2.15 SAND TIGER SHARK

The sand tiger shark has a broad inshore distribution. In the Western Atlantic, this shark occurs from the Gulf of Maine to Florida, in the northern Gulf of Mexico, in the Bahamas and in Bermuda. They are generally a coastal species, usually being found from the surf zone to depths around 75 feet. They may also be found in shallow bays. They usually live near the bottom, but may be found throughout the water column (NMFS 2007i). Given its distribution, it is possible that the sand tiger shark could occur in the project area. However, given its scarcity, this is unlikely.

### 2.16 SMALLTOOTH SAWFISH

Smalltooth sawfish have been reported in the Pacific and Atlantic Oceans and in the Gulf of Mexico. Sawfish species inhabit shallow coastal waters of tropical seas and estuaries throughout the world. They are usually found in shallow waters very close to shore over muddy and sandy bottoms. They are often found in sheltered bays, on shallow banks, and in estuaries or river mouths. The U.S. population of smalltooth sawfish is found only in the Atlantic Ocean and Gulf of Mexico. Historically, the U.S. population was common throughout the Gulf of Mexico from Texas to Florida, and along the east coast from Florida to Cape Hatteras. The current range of this species has contracted to peninsular Florida, and they are relatively common only in the Everglades region at the southern tip of the state (NMFS 2007d). It is very unlikely that this species would occur in the project area.

### 2.17 SPECKLED HIND

The speckled hind inhabits warm, moderately deep waters from North Carolina to Cuba, including Bermuda, the Bahamas and the Gulf of Mexico. The preferred habitat is hard bottom reefs in depths ranging from 150 to 300 feet (NMFS 2007j). Due to the very shallow water and sand substrate in the project area, it is very unlikely that this species would be found in the project area.

## **2.18 WARSAW GROUPE**

The Warsaw grouper is a very large fish found on the deep-water reefs of the southeastern United States. This fish ranges from North Carolina to the Florida Keys and throughout much of the Caribbean and Gulf of Mexico to the northern coast of South America. This species inhabits deepwater reefs on the continental shelf break in waters 350 to 650 feet deep (NMFS 2007k). Due to the very shallow water and sand substrate in the project area, it is very unlikely that this species would be found in the project area.

## **2.19 WHITE MARLIN**

White marlin are found in offshore waters throughout the tropical and temperate Atlantic Ocean and adjacent seas. White marlin preferred habitat is deep blue water over 330 feet deep with salinity around 35 parts per thousand and a surface temperature of about 72 degrees Fahrenheit. Prey items include a variety of fishes, crustaceans, and cephalopods (NMFS 2007l). Since this is a deep-water species and the project site does not provide any deep water habitat, this species is very unlikely to be found in the project area.

## **2.20 IVORY BUSH CORAL**

Ivory bush coral is endemic to the southeastern U. S. and ranges from Cape Hatteras, North Carolina through the Gulf of Mexico and Caribbean, although the main population is of east-central Florida. Colonies of this coral are found in depths of 160 to 500 feet on substrates of limestone rubble, low-relief limestone outcrops, and high-relief, steeply sloping prominences (NMFS 2007e). The shallow water in the project does not provide suitable habitat for this species so it is extremely unlikely that this species would be found in the project area.

## **3.0 EFFECTS OF PROPOSED ACTION ON LISTED SPECIES AND SPECIES OF CONCERN**

### **3.1 EFFECTS ON BALD EAGLE**

Since bald eagles are temporary migrants that are not likely to utilize the area due to lack of suitable habitat, the proposed project will have no effect on this species.

### **3.2 EFFECTS ON BROWN PELICAN**

Foraging brown pelicans are common along the Texas Coast and may be found in the project area. However, no nesting sites are located in the project area. Further, pelicans are highly mobile and are able to relocate to avoid any disturbance from construction activities. The proposed project is not likely to adversely impact this species.

### 3.3 EFFECTS ON PIPING PLOVER

The proposed project is located within and adjacent to designated wintering piping plover critical habitat. However, the project is not likely to adversely affect the piping plover or critical habitat. The duration of impacts from construction activity would be relatively short and piping plovers are adaptable enough to shift foraging areas to avoid the immediate construction site. In the long-term, the completed structure is expected to be beneficial to designated critical habitat. Once constructed, it is expected that the new jetty will cause sand to accrete on the beach to the east of the structure, nourishing the beach and providing additional foraging areas for the piping plover.

The project is also expected to be beneficial to Critical Habitat Unit TX-23, on the west bank of the Mouth of the Colorado River. The structure would act as protection to the west bank of the river, which currently experiences significant erosion along the northern end of the west jetty. The reduction in shoaling rate would also be beneficial to the piping plover. While material excavated during maintenance dredging would continue to be used to nourish the beach within Unit TX-23, the need to access the site with the construction equipment needed to place dredge pipelines would be reduced from an annual or more frequent basis to about once every two years. The location and timing of the placement of dredged materials would be coordinated with USFWS prior to placement.

The following management measures would be implemented during construction and maintenance operations to avoid and minimize any adverse impacts to piping plover:

- Contractors will have all construction workers trained by qualified personnel to recognize protected species, including piping plover. Workers will also be trained on the avoidance and minimization measures required during project construction.
- Contractors will provide USACE with the name of a single point of a single point of contact (POC) responsible for communicating, monitoring and reporting on endangered species issues during construction, including an activities log. This POC will ensure that no piping plovers are affected by work activities and ensure loafing and/or resting birds are not in the project area during construction.
- Materials and equipment required for the project will be staged in upland areas, not on the beach, and transported as needed to the work sites. There will be no overnight storage of equipment on the beach.
- The number of vehicles transiting from the upland staging area to the project site will be kept to a minimum, all vehicles will use the same pathway whenever possible, and vehicle access will be confined to the immediate needs of the proposed project.
- Placed dredged material will be maintained at a gradual slope and after project completion, all mud or wind tidal flats and/or project sites seaward of the mean high tide line will be restored to pre-construction slope or contours and all ruts will be removed.

- Any construction activities conducted during the remainder of the sea turtle nesting season (from July 15 through September 30) would require implementation of the following additional avoidance measures:
- An independent, qualified monitor or monitors will be hired and trained by the contractor to monitor all construction activities, escort construction vehicles to and from work sites, and monitor for the presence of threatened and endangered species, including piping plovers. The trained monitor will survey the beach daily for piping plovers prior to the initiation of any construction activity, and periodically throughout the day. The monitor will keep a daily log, documenting all surveys conducted during the beach construction project.

### 3.4 EFFECTS ON WHOOPING CRANE

The winter population of whooping crane remains largely confined to the Aransas National Wildlife Refuge and only a few individuals have been observed outside that area. Since the project site does not contain suitable habitat for the whooping crane, the project will have no affect on this species.

### 3.5 EFFECTS ON SEA TURTLES

While sea turtles may occur in the project area, the proposed project is not likely to adversely affect any of these species. The species that have the highest probability of being encountered in the project area are Kemp's Ridley and loggerhead sea turtles. Kemp's Ridley turtles nest from April through July (USFWS and NMFS 1992) and loggerheads nest from late April through September (TPWD 2007d).

Maintenance dredging in the entrance channel would be conducted using cutterhead dredges, which move at slow enough speeds that turtles would be able to move out of the way of the cutterhead. If construction or maintenance activities in the beach zone occur during the nesting season for these species, conservation measures and monitoring of construction would be implemented to reduce the potential impact on these species and help to ensure that the project is not likely to adversely affect sea turtles. The following management measures would be implemented during construction and maintenance operations to avoid and minimize any adverse impacts to sea turtles:

- Contractors will have all construction workers trained by qualified personnel to recognize protected species, including nesting sea turtles and their tracks. Workers will also be trained on the avoidance and minimization measures required during project construction.
- Contractors will provide USACE with the name of a single point of a single point of contact (POC) responsible for communicating, monitoring and reporting on endangered species issues during construction, including an activities log. This POC will stop work in the event sea turtles, their nests or their eggs are found. The POC will safeguard any turtle eggs until they can be relocated by the appropriate, permitted individuals.



- Material placed on the beach will be predominantly beach quality sand consistent in grain size, color and composition with the existing beach sand and be free of hazardous materials.
- Materials and equipment required for the project will be staged in upland areas, not on the beach, and transported as needed to the work sites. There will be no overnight storage of equipment on the beach.
- The number of vehicles transiting from the upland staging area to the project site will be kept to a minimum, all vehicles will use the same pathway whenever possible, and vehicle access will be confined to the immediate needs of the proposed project.
- Placed dredged material will be maintained at a gradual slope and after project completion, all mud or wind tidal flats and/or project sites seaward of the mean high tide line will be restored to pre-construction slope or contours and all ruts will be removed.
- No beach nourishment activities will be conducted during the peak sea turtle nesting season, from April 1 through July 15.
- Any construction activities conducted during the remainder of the sea turtle nesting season (from July 15 through September 30) would require implementation of the following additional avoidance measures:
  - An independent, qualified monitor or monitors will be hired and trained by the contractor to monitor all construction activities, escort construction vehicles to and from work sites, and monitor for the presence of threatened and endangered species. The trained monitor will survey the beach daily for sea turtles, sea turtle tracks, and sea turtle nests prior to the initiation of any construction activity, and periodically throughout the day. The monitor will keep a daily log, documenting all surveys conducted during the beach construction project.
  - Contractors will smooth out ruts in the beach at the end of each construction day.
  - Use of night lights will be minimized, directed toward the construction activity area, and shielded from view outside of the construction area.

### 3.6 EFFECTS ON WHALES

Whales occur in offshore waters and none of these species are likely to wander into shallow coastal estuaries. Therefore, the proposed project will have no effect on these species.

### 3.8 EFFECTS ON SMALLTOOTH SAWFISH

Due to the scarcity of this the smalltooth sawfish and the unlikelihood of occurrence in the project area, the proposed project will have no affect on this species.

### **3.9 EFFECTS ON IVORY BUSH CORAL**

This species does not exist in the project vicinity, nor does suitable habitat for this species exist in the project area. Therefore, the proposed project will have no effect on this species.

### **3.10 EFFECTS ON FISH SPECIES OF CONCERN**

With the possible exception of the dusky shark, habitat for these species does not exist in the project vicinity. Therefore, it is unlikely that these species would be found in the project area. Accordingly, the proposed project will have no affect on the largemouth sawfish, night shark, saltmarsh topminnow, sand tiger shark, speckled hind, Warsaw grouper, and white marlin.

Although there is a possibility that the dusky shark could occur in the project area, it is a wide-ranging and migratory species and any occurrence is likely to be brief. The project area would not represent a significant portion of the dusky shark's range or habitat. Therefore, the proposed project is not likely to adversely affect the dusky shark

### **4.0 CONCLUSIONS**

The overall conclusion is that the proposed project is not likely to adversely affect any federally-listed threatened or endangered species, nor will it adversely modify critical habitat. Also, the project is not likely to adversely affect any species of concern. Although several threatened or endangered species may occur in the project vicinity, no regularly used habitat is known to exist in the immediate project site. Measures would be implemented to avoid and minimize any adverse impacts to piping plovers and sea turtles. Should any other listed species wander into the project vicinity, the size and mobility of these animals would allow them to avoid the immediate project site during construction and maintenance operations.

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## **APPENDIX F**

### **OTHER AGENCY CORRESPONDENCE**



**DEPARTMENT OF THE ARMY**  
**GALVESTON DISTRICT, CORPS OF ENGINEERS**  
P. O. BOX 1229  
GALVESTON, TEXAS 77553-1229

October 10, 2007

Environmental Section

James E. Bruseth, Ph.D.  
Deputy State Historic Preservation Officer  
Division of Archaeology  
Texas Historical Commission  
P.O. Box 12276  
Austin, TX 78711-2276

RECEIVED  
OCT 17 2007  
THC-Purch. log

Dear Dr. Bruseth:

The U.S. Army Corps of Engineers, Galveston District (USACE), in cooperation with the Port of Bay City, has developed proposed plans to construct a new east jetty at the mouth of the Colorado River in Matagorda County, Texas. The new east jetty is needed to reduce shoaling, erosion, the frequency of dredging. The proposed project will be confined to the area previously disturbed by dredging and the construction of the existing jetties, weir, and impoundment basin system (enclosure 1).

The project area has been surveyed twice before by the USACE. The first survey was conducted by Odom Offshore Surveys, Inc. and described in the report entitled "Report of Survey, Cultural Resources Reconnaissance, Colorado River Channel, Texas" and dated 1978. The second survey was conducted by Fairfield Industries and described in the report entitled "Mouth of Colorado River, Texas, Project, Cultural Resources Assessment" and dated 1979. As a result of these two surveys, two anomalies were identified for avoidance (both are located outside of the existing or current project area). In addition, the proposed project area has been severely altered by the construction of the existing jetties, weir, and impoundment basin system between 1988 and 1990. These alterations have modified the area so extensively that there is no reasonable expectation that historic properties would still exist.

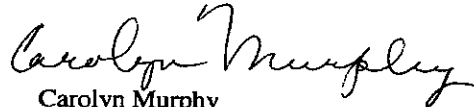
Because previous surveys did not identify significant magnetic anomalies within the project area and the project area has been extensively modified by previous projects, it is the position of the USACE that no archeological sites will be affected by the proposed project. Therefore we request your concurrence with a determination of "No Effect" for the proposed project.

NO HISTORIC  
PROPERTIES AFFECTED  
PROJECT MAY PROCEED

By [Signature]  
for F. Lawrence Oaks  
State Historic Preservation Officer  
Date 10/18/07  
Track# 200801296

Thank you for your cooperation. If you have any questions or require additional information, please call staff archeologist Jerry Androy at (409) 766-3821.

Sincerely,

A handwritten signature in cursive script that reads "Carolyn Murphy". The signature is written in dark ink and is positioned above the printed name and title.

Carolyn Murphy  
Chief, Environmental Section

Enclosure





Enclosure 1. Map showing the location of the existing jetty system and the proposed jetty.

FEB 07 2008



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

Division of Ecological Services

17629 El Camino Real #211

Houston, Texas 77058-3051

281/286-8282 / (FAX) 281/488-5882



*DCW to P.E.M.*  
January 30, 2008

Colonel David C. Weston  
U.S. Army Corps of Engineers, Galveston District  
P.O. Box 1229  
Galveston, Texas 77553

Dear Colonel Weston:

This U.S. Fish and Wildlife Service (Service) Planning Aid Letter provides Service analysis of impacts and mitigation for important fish and wildlife resources related to the proposed modification and construction of the Mouth of the Colorado River, Texas Major Rehabilitation of the East Jetty Project. It is in fulfillment of our joint Scope of Work on this project, dated September 13, 2007.

#### Project Location

The project area lies in the Lower Colorado River Authority (LCRA) Matagorda Bay Nature Park, eastern edge of Matagorda Bay, where the lower Colorado River channel meets the Gulf of Mexico. The LCRA acquired the park in 2001 and now works together with the community of Matagorda to develop the park and its many recreational programs. The park is comprised of 1,600 acres and has a natural science center, a recreational vehicle park, pavilions and a fishing pier (east jetty owned and maintained by the U.S. Army Corps of Engineers (USACE)). Tourists can participate in outdoor activities such as fishing, bird watching and beach combing.

#### Project Environment

The project area occurs on East Matagorda Peninsula, a 31 mile long barrier peninsula that remains relatively undeveloped. Impacts have been limited to hunters, recreationists, all-terrain vehicles, and grazing interests. There is a housing development to the east of the project area along the coastline.

Vegetative communities range from barren beaches to sparsely vegetated sand dune and back dune areas to salt tolerant prairie to small freshwater swales to near barren algal and salt flats to intertidal marsh and mudflats. Brush and tree mottes are common in prairies more inland but adjacent to the estuary are largely absent from Texas Gulf barrier islands due to salt spray and wildfires. Dominant plants found in the below listed communities, were verified during the interagency site visits.

**TAKE PRIDE  
IN AMERICA** 

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Common species to sand dunes and back dune areas are beach morning glory (*Calystegis soldanella*), salt grass (*Distichlis spicata*), smooth cordgrass (*Spartina alterniflora*), sea oats (*Chasmanthium latifolium*), sea rocket (*Cacile edentula*) and marsh fimbry (*Fimbristylis littoralis*).

Common species to the salt tolerant prairie are big bluestem (*Andropogon gerardii*), bushy bluestem (*Andropogon glomerulatus*), marsh fimbry, marsh hay cordgrass (*Spartina patens*), Gulf cordgrass (*Spartina spartinae*), false indigo plant (*Baptista fruticosa*), woolly croton (*Croton punctata*), Indian blanket (*Gaillardia pulchella*), and coneflower (*Echinacea purpurea*).

Common species to the fresh water swales include black needlerush (*Juncus roemerianus*), sedges (*Carex* sp.), cattail (*Typha latifolia*), bulrush (*Scirpus* sp), marsh hay cordgrass, big cordgrass (*Spartina cynosuroides*), water hyssop (*Bacopa monera*), smartweeds (*Polygonum* sp.) spikerushes (*Echinocloa* sp.), and marsh aster (*Aster tenuifolia*).

Common species to the agal and salt flats include blue green algae (*Lyngbya confervoides*), saltwort (*Batis maritima*), glasswort (*Salicornia virginica*), shoregrass (*Monanthocloe littoralis*), sea rocket, sea blite (*Pseuda* sp) and marsh fimbry.

Species common to the intertidal marsh are smooth cordgrass (*Spartina alterniflora*).

The project area is home to many migratory bird species that use the area as a stopover site. Many game and non-game birds can be found along the Texas Coast during the winter months as they either winter here or stop over as part of a migration. Species found in the project area include the Canada goose (*Branta canadensis*), white-fronted goose (*Anser albifrons*), snow goose (*Chen hyperborea*), blue goose (*C. caerulescens*), pintail (*Anas acuta*), gadwall (*A. strepera*), blue and green winder teal (*A. discors*, *A. carolinensis*), mallard (*A. platyrhynchos*), mottled ducks (*A. fulvigula*), shovler (*A. chrypeata*), lesser scaup (*Aythya affinis*) redhead (*A. americana*), and American wigeon (*Mareca americana*). In addition, the bay and marshes are home to many shore and wading birds, including pelicans (*Pelecanus* spp.) black skimmer (*Rynchops niger*), white faced ibis (*Plegadis chihi*), roseate spoonbill (*Ajaia ajaja*), plover (*Charadrius* spp.), sandpipers, gulls terns, herons, and egrets.

Common wildlife species found in these habitats are the Texas diamondback terrapin (*Malaclemys terrapin*), Gulf saltmarsh snake (*Nerodia fasciata*), diamondback rattlesnake (*Crotalus horridus*), cottonmouth (*Crotalus piscivorus*), Texas horned lizard (*Phrynosoma douglassii*), northern rice rat (*Oryzomys palustris*), hispid cotton rat (*Sigmodon hispidus*) raccoon (*Procyon lotor*), coyote (*Canis latrans*), and white tailed deer (*Odocoileus virginianus*), nutria (*Myocaster coypus*), otter (*Lutra canadensis*), muskrat (*Ondatra zibethicus*), skunk, rabbit (*Sylvilagus* spp.), and armadillo (*Dasypus novemcinctus*).

Common fish species to the shallow bay are red drum (*Sciaenops ocellatus*), black drum (*Pogonias cromis*), spotted seatrout (*Cynoscion nebulosus*), southern flounder (*Paralichthys lethostigma*), sheepshead (*Archosargus probatocephalus*) and croaker (*Micropogonias undulatus*). Other common fish include the sea catfish (*Arius felis*) mullet (*Mugil cephalus*), bay anchovy (*Anchoa mitchilli*), and squid (*Loligo* sp.). Important commercial crustaceans species

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found in the area include brown shrimp (*Farfantepenaeus aztecus*), white shrimp (*Litopenaeus setiferus*) and blue crab (*Callinectes sapidus*).

#### **Project Background**

The Mouth of the Colorado River Jetties were constructed in 1985. The east jetty included a 1,000 foot weir on the shoreward end that was to allow sand to pass into an impoundment basin. This basin was to be maintenance-dredged with the sand "bypassed" over the west jetty at 2 year intervals and placed on to the beach, thus re-nourishing the beach. However, the basin did not function as planned, and, as a result, sand spits have accumulated on both sides of the river mouth, impeding safe navigation through the channel. A sediment training structure (STS) was constructed in 2003 to help alleviate the formation of the spits and direct the sand into the impoundment basin. Shortly after construction, the STS failed and was buried by sand. Virtually all commercial fishing vessels that once flourished in this area had to be relocated due to limited channel access.

Service and resource agency (Texas Parks and Wildlife and National Marine Fisheries) biologists visited the site on two occasions (May and November 2007) to assess impacts of the project to fish and wildlife resources.

#### **Proposed Work**

The USACE is currently considering a re-modification of the east jetty. The new jetty would be constructed west of the existing east jetty and would be partially built on the footprint of the existing STS. The new jetty would extend to a total length of 2,750 feet and would consist of three segments of varying sizes of rock. The landward section will be approximately 550 feet long and will be constructed on top of the existing STS. The second segment will be approximately 700 feet long and will be constructed on land. The final segment will be approximately 1500 feet long, with 350 feet constructed on land and the remainder in water. The newly constructed east jetty and the west jetty will be 500 feet apart at the seaward end. The rock to be used for the new jetty will be transported via truck or barge. Cranes, draglines and other heavy equipment will be used to remove and place the rock. Construction is currently anticipated to last between 500 and 700 days. The existing east jetty would remain in place. Total dredge material excavated during jetty construction is an estimated 400,000 cubic yards to be bypassed to the west into the surf zone.

A temporary flotation channel may be needed for barges carrying rock to access the construction site. However, this has not been determined as of the writing of this document. In the event that a channel may be necessary, the channel would be dredged using a hydraulic dredge to a depth of 9 feet below mean sea level (MSL), approximately 1000 feet long and a channel width of approximately 70 feet. Expected volume to be dredged from this temporary channel would be 14,000 cubic yards. It is anticipated that this dredge material will be pumped on to the beach and surf zone west of the west jetty. The COE will allow natural littoral drift to fill the temporary channel.

Once the project is complete, the USACE expects to maintenance dredge the entrance of the channel every 2 years using a cutter head dredge. An average of 100,000 cubic yards of dredge material will be placed on the beach and into the surf zone some 2000 to 5000 feet west of the west jetty. In addition, there is expected to be some dredging of material between the existing east jetty and the new east jetty. This dredging would be completed at the same time dredging is

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done on the channel mouth. Total dredge material to be placed west of the west jetty would be 400,000 cubic yards every dredge cycle.

The completed project would encompass approximately 6 acres, which includes the 0.8 acres STS.

#### **Endangered Species and Critical Habitat**

A review of Service files indicates that the federally listed threatened piping plover (*Charadrius melodus*) is known to winter along the beaches of the Texas Gulf Coast. Texas has the highest wintering population of piping plovers, which exhibit strong site fidelity and territoriality. In winter, piping plovers use beaches, sandflats, mudflats, algal mats, and dunes along the Gulf Coast and adjacent offshore islands, as well as spoil islands in intra-coastal waterways. A International Piping Plover Census was conducted for wintering plovers along the Texas coast in February and March 2006. In the 18 miles of similar gulf beach habitat immediately west of the project site, 11 piping plovers were observed. East of the project, 20 snowy plovers were observed in similar gulf beach habitat in the 22.7 miles of Matagorda Peninsula beach. In addition, the endangered Kemp's ridley sea turtle (*Lepidochelys kempii*) is known to nest in the vicinity of the project area. The range of the Kemp's ridley includes the Gulf coasts of Mexico and the U.S., and the Atlantic coast of North America as far north as Nova Scotia and Newfoundland. Most Kemp's ridleys nest on the coastal beaches of the Mexican states of Tamaulipas and Veracruz, although a very small number of Kemp's ridleys nest consistently along the Texas coast.

According to Section 7(a)(2) of the Endangered Species Act and the implementing regulations, it is the responsibility of each federal agency to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any federally listed species. Therefore, you should use this and other current information to evaluate the project for its potential effects to listed species. The Service's Consultation Handbook (<http://endangered.fws.gov/consultations/s7hndbk/s7hndbk.htm>) is available to assist you with further information on definitions, process, and fulfilling Endangered Species Act requirements. In addition, the NOAA Fisheries Protected Resource Branch (David Bernhart, 727/551-5767) should be contacted for additional information on listed species under their jurisdiction.

#### **Alternatives**

The USACE has analyzed several alternatives ranging from no action to opening Parker's Cut, to extending the west jetty, elevating the weir, and constructing a series of groin fields along the shoreline east of the jetties and channel entrance. The Locally Preferred Plan, which consists of the construction of a new east jetty, is a result of a study performed by the Coastal and Hydraulics Laboratory, Engineer Research and Development Center, USACE. In addition, the local sponsor favors this alternative.

#### **Impacts of the Locally Preferred Plan**

The USACE will dredge from the channel and place 200,000 cubic yards of sand to the west of the west jetty. Preference is to place the sand on the beach for erosion control. However, impacts and avoidance measures to the piping plover and Kemp's ridley sea turtle must be evaluated prior to placement of dredge material. Discharging the sand in to the surf zone will cause temporary water turbidity, and the impacts to fish in the area are expected to be minimal. Fish are highly mobile and have the ability to quickly leave an area if disturbance is sensed.

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Similar fish habitat is found adjacent to the project site. In addition, temporary sand bars may form barriers and prohibit or alter fish movement or migration until the sediment is carried by natural littoral drift processes.

Piping plovers winter on the gulf beach and forage on invertebrates found in the sand. Discharging dredge material onto the beach will cause temporary impacts and displacement of the piping plover due to lost foraging opportunities. Fortunately, similar beach quality habitat is found adjacent to the project site.

#### **CBRA Zone**

The Service has determined that the project site lies partially within Unit T07 of the Coastal Barrier Resources System. The Coastal Barrier Resources Act prohibits, with limited exceptions, the expenditure of federal funds within a unit of the System. The federal agency, after consultation with the Service, may make federal expenditures for the maintenance of existing federal navigation channels and related structures, including the disposal of dredge materials related to such maintenance. A federal navigation channel or a related structure is an existing channel or structure, respectively, if it was authorized before the date on which the relevant System unit or portion of the System unit was included within the System, which in the case of T07 was September 30, 1982.

#### **Recommendations**

- ❖ The Service requests that the USACE continue to coordinate with the Service as plans are developed for this project.
- ❖ While the Service is generally in favor of beach nourishment, the area is designated as critical habitat for one species, the piping plover, and is a nesting area for another, the Kemp's ridley sea turtle. Impacts to both species will need to be evaluated by the COE under Section 7 of the Endangered Species Act.
- ❖ The USACE consult with the Service to determine whether the proposed project conforms with the exemptions of the CBRA.
- ❖ All construction workers be trained by qualified personnel to recognize protected species including shore birds, nesting sea turtles and their tracks, and on the avoidance and minimization measures required during project construction.
- ❖ The USACE have a single point of contact (POC) responsible for communicating, monitoring and reporting on endangered species issues during construction, including keeping an activities log. This POC will stop work in the event sea turtles, their nests or their eggs are found; the POC will safeguard them until they can be relocated by the appropriate, permitted individuals. In addition, this POC will ensure that no piping plovers are affected by work activities, and ensure that loafing and/or resting birds are not in the project area during construction.
- ❖ Material placed on the beach will be predominantly beach quality sand consistent in grain size, color and composition with the existing beach sand and free of hazardous materials.
- ❖ Materials and equipment required for the project be staged in upland areas, not on the beach, and transported as needed to the work sites. There be no overnight storage of equipment on the beach.
- ❖ The number of vehicles transiting from the upland staging area to the project area will be kept to a minimum, all vehicles use the same pathway, where ever possible, and vehicle access be confined to the immediate needs of the proposed project.

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- ❖ Placed dredge material be maintained at a gradual slope, and after project completion all mud or wind tidal flats and /or project sites seaward of the mean high tide line be restored to pre-construction slope or contours, and all ruts leveled.
- ❖ No beach nourishment/dune restoration activities be conducted during the peak sea turtle nesting season, from April 1 through July 15.
- ❖ Any construction activities conducted during the remainder of the sea turtle nesting season (from July 15 through September 30) implement the following additional avoidance and minimization measures:
  - An independent, qualified monitor or monitors be hired and trained to monitor all construction activities, escort construction vehicles to and from work sites, and monitor for the presence of threatened and endangered species. The trained monitor should survey the beach daily for sea turtles, sea turtle tracks, sea turtle nests, and shore birds prior to the initiation of any construction activity, and periodically throughout the day. The monitor keeps a daily log documenting all surveys conducted during the beach construction project.
  - Smoothing out ruts in the beach at the end of each construction day.
  - Use of night lights will be minimized, directed toward the construction activity area, and shielded from view outside of the construction activity area.
- ❖ Monitoring of the invertebrate community found at the beach discharge site to determine duration of impacts to foraging activities of the piping plover.

Thank you for the opportunity to provide input to assist the USACE in planning projects which protect and restore these important native Texas coastal fish and wildlife habitats. Please contact staff biologist Donna Anderson at (281) 286-8282 if you have questions concerning these recommendations.

Sincerely,



Stephen D Parris  
Field Supervisor, Clear Lake Ecological Services

cc:

Rebecca Hensley, Texas Parks and Wildlife Dept, Dickinson, Texas  
Gary McMahon, Texas General Land Office, LaPorte, Texas  
Mark Fisher, Texas Commission On Environmental Quality, Austin, Texas  
Jim Herrington, Environmental Protection Agency, Dallas, Texas  
David Bernhart, National Marine Fisheries, St. Petersburg, Florida

## **APPENDIX G**

### **DISTRIBUTION OF THE PUBLIC NOTICE FOR THE DRAFT ENVIRONMENTAL ASSESSMENT**



## **Distribution of the Public Notice for the Draft Environmental Assessment**

Honorable Ron Paul  
200 West Second St.  
Freeport, TX 77541

Honorable Rick Perry  
Governor of Texas  
P.O. Box 12428  
Austin, TX 78711

Upper Coast Conservation Program Leader  
Texas Parks and Wildlife Department  
1502 FM 517 E  
Dickinson, Texas 77539

Railroad Commission of Texas  
Environmental Services  
P.O. Drawer 12967, Capitol Station  
Austin, TX 78711

Texas Commission on Environmental Quality  
TCEQ-MC150  
P.O. Box 13087  
Austin, TX 78711-3087

Texas Office of State-Federal Relations  
PO Box 13005  
Austin TX 78711

George Deshotels  
Precinct 2 Commissioner  
Commissioner's Court of Matagorda County  
P.O. Box 571  
Matagorda, TX 77457

Coastal Coordination Council  
P.O. Box 12873  
Austin, TX 78711-2873

Honorable Kay Bailey Hutchison  
1919 Smith St., Suite 800  
Houston, TX 77002

Executive Director  
Texas Parks and Wildlife Department  
4200 Smith School Road  
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Director, Coastal Division  
Texas General Land Office  
1700 North Congress  
Austin, TX 78711

Governor's Office of Budget & Planning  
State Single Point of Contact  
1100 San Jacinto, Room 441A  
Austin, TX 78701

Texas Water Development Board  
Environmental Systems Section  
P.O. Box 13231  
Austin, TX 78711

Texas Department of Transportation  
125 E. 11th  
Austin, TX 78701-2483

State Historic Preservation Officer  
Texas Historical Commission  
105 W. 16th Street  
Austin, TX 78701

Matagorda County Navigation District 1  
P.O. Box 551  
Palacios, TX 77465

National Marine Fisheries Service  
Environmental Assessment Branch  
4700 Avenue U  
Galveston, TX 77550

Chief, Ecosystems Protection Branch  
U.S. Environmental Protection Agency  
1445 Ross Avenue  
Dallas, TX 75202-2733

Field Supervisor  
U. S. Fish and Wildlife Service  
17629 El Camino Real, Suite 211  
Houston, TX 77058

U. S. Coast Guard  
Eighth Coast Guard District  
Hale Boggs Federal Building  
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New Orleans, LA 70130

Bay City Chamber of Commerce  
PO Box 768  
Bay City, TX 77414

Senior Environmental Coordinator  
Lower Colorado River Authority  
P.O. Box 220  
Austin, TX 78767-0220

Jerry Mohn  
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Galveston, TX 77554

Nick Kraus, Ph.D.  
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Sierra Club  
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Austin, TX 78767

Assistant RA for Protected Resources  
Southeast Regional Office  
National Marine Fisheries Service  
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NEPA Compliance Section (6EN-SP)  
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Bryan, TX 77802

Mike Griffith  
Port of Bay City Authority  
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City of Bay City  
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Matagorda County Courthouse  
Room 326  
Bay City, TX 77414

The Nature Conservancy  
Coastal Office  
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